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THE

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IN TWO VOLUMES.

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PREFACE.

In compiling the British Burma Gazetteer, the principal works referred to, besides the published official reports, have been: Father Sangermano's Account of the Burman Empire, Sonnerat's Voyages aux Indes et à la Chine, Syme's Mission to Ava, Crawford's Mission to Ava, Snodgrass' Burmese War of 1826, Wilson's Account of the first Burmese War, Laurie's Account of the second Burmese War, Pemberton's N. E. Frontier, Yule's Mission to Ava, Colonel Horace A. Browne's Statistical Account of the Thayet-myo district, Sir Arthur Phayre's History of the Burma Race, his History of Arakan and his History of Pegu, all published in the Journal of the Asiatic Society of Bengal, as well as other papers of his and of Colonel Horace A. Browne's to be found in that Journal, and last but not least Mason's Burma. In preparing the chapter on Ethnology I received most willingly-rendered assistance from Dr. Stevens and Messrs. Brayton and Cushing of the American Baptist Mission. That Portion of Chapter II. which relates to Geology is by Mr. Theobald of the Geological Survey of India (who also wrote the chapter on Reptiles) and the second portion was to some extent revised by him. The first part of Chapter III. is from the late Mr. Kurz's reports. The first part of Chapter V. is by the Right Reverend Bishop Bigandet, Vicar Apostolic of Pegu, from whose work on Gaudama the second portion is extracted. Chapter XVI. is compiled from the works of Blyth (almost entirely) and Jerdon. The chapter on Ornithology is by Mr. Oates of the Public Works Department. The Chapter on Ichthyology is compiled from Dr. Day's reports and publications, and the last Chapter was written by Mr. W. T. Blanford of the Geological Survey of India. Unfortunately in no case except one (Ornithology) has there been time to submit proofs to these authors.

From many others I have received much assistance.

The system of transliteration which has been followed is that generally known as Colonel Horace A. Browne's (by an unfortunate error which was discovered when it was too late *z* and *zh* have been substituted for *dz* and *dzh*), and it has been followed in obedience to the orders of the Local Government to which special reference on the subject was made. The following account is taken almost verbatim from Colonel Horace A. Browne's description of it.

H. R. SPEARMAN.

THE spelling of the names of well-known places, such as Rangoon, Irrawaddy, Sandoway, Donabyoo and Bassein has not been changed. For the rest the orthographical system which has been followed has substantially the same basis as that on which the system of transliteration prescribed by the Government of India for the rendering of Indian names into English is founded. The main principal of that system appears to be constantly to represent each letter of a word as written in the Sanskrit or Semitic characters by that letter of the Roman alphabet which approaches it most nearly in phonetic value and which is on that account uniformly recognized as its equivalent. The same system, *mutatis mutandis*—*i. e.*, substituting the Burmese for the Sanskrit or Semitic characters—has been followed in this work so far as it has been possible to do so.

The modern Burmese alphabet, like the Devanagari, is derived from the Pali and was received by the Burmese, together with their religion, from the West; but in accommodating an essentially Aryan alphabet to the sounds of a monosyllabic tongue the phonetic value of many of the letters has undergone a considerable change.

In transliterating Burmese words, in order to render such transliteration at all useful or intelligible to any one, the phonetic value (in English letters) of the Burmese characters composing the word must be given. There is, however, one great impediment in the way of a rigorous adherence to an uniform transliteration of Burmese letters into their common English equivalents when it is desired to give anything like an approximate idea of the sound of the word to persons unacquainted with the peculiarities of the Burmese alphabet. This arises from the radical changes of sound

undergone by some of the Burman letters when in certain positions, or in certain combinations with other letters; *e.g.*, the letter of which the common equivalent is the English letter *k* has, when placed in certain positions with regard to other letters, the sound of the English *t*.

Each letter is always represented *either* by its ordinary English equivalent *or* by one of its recognized permutations. What these recognized permutations are will be seen from the following table :—

Burmese initial form.	Medial and final symbol.	Usual English equivalent.	Permutations.	
		VOWELS.		
အ	None.	a {	e.o. ee.	The usual sound of this letter is that of the first *a* in *papa*. It is inherent in every consonant that has not another vowel attached or the mark of finality (်) superadded; when followed by *ng* final (င်) or *k* final (က်) it invariably has the sound of the English *e* in *Ben* and *fleck* respectively; when inherent in *w* (ဝ) and followed by *n*, *m* or *l* it has the sound of the English *u* in *full*; when inherent in a consonant followed by *ts* final (ဆ်) it has the sound of *i* in *it* and when followed by *gny* final (ည်) its power is permuted to *ee*, or sometimes to *ey*.
အာ	ာ or ါ	a	None	The sound of this letter is constant, and is that of the last *a* in *papa*.
ဣ	ိ	ie	None	This letter when initial or final has the sound of *ie* in *mien*; when medial it has a sound which it is difficult to exemplify in English. It is intermediate between the sound of *ie* in *mien* and of *i* in *like*.
ဤ	ီ	ee	None	Has the sound of *ee* in *thee*.
ဥ	ု	oo	None	Has the sound of *oo* in *good* or *u* in *full*, and sometimes when followed by a final consonant that of *o* in *bone*; always represented by *oo*.

ဦ	ု	oo	None	Has the power of *oo* in *food*. It is never followed by a final consonant.
ေ	ေ	e	None	Has the power of *a* in *fame*.
ဲ	◌	ai	None	This, which is never followed by a final consonant, has almost exactly the sound of the French *è* as in *père* or the English *ai* in *pair*. To save the use of the accent it is represented by *ai*.
		DIPHTHONG.		
ော	ေ ာ	aw	ou	The usual power of this diphthong is nearly that of the English *aw* in *maw*. When combined with a consonant and followed by final *k* or *ng* it has the sound of *ou* in *lout* and *bound*.
ေ◌	ေ ◌	aw	None	This has a slightly broader sound than the last and is never followed by a final consonant.
		TRIPTHONG.		
ို	◌ ◌	o	ai	This tripthong has usually the sound of the English *o* in *go*; when followed by final *k* or final *ng* it has much the sound of *y* in *tyke*, but the sound being somewhat broader it is generally represented by *ai*; as it is only thus written when followed by a final consonant it cannot be mistaken for (◌), which never is so followed. Thus the vowel in *pai* must be (◌) and the vowel in *paik* must be (◌◌).
		CONSONANTS.		
Gutturals.	၀	k	g initial, t final	Has generally the sound of the English *k* in *king*. It sometimes has a power intermediate between *k* and *g*; when final and preceded by an inherent vowel its power is permuted to *t*.

	Burmese initial form.	Usual English equivalent.	Permutations.	
		CONSONANTS.—(*continued*).		
Guttirals—(*concluded*).	ခ	kh	g	Has the power of an aspirated *k*; when followed by *y* or *r* (with the *y* permutation) the two letters have a sound something like that of *ch* in *chin* or *g* in *gin*. This is perhaps the most difficult of all sounds for a foreigner to produce as it is between *kh* and *ch*, neither hard nor soft but hard-soft or soft-hard.
	ဂ	g	None	Power of *g* in *go*.
	ဃ	gh	None	Aspirate of preceding.
	င	ng	None	When initial has the power of *gn* in the German *gnade*; when final has the power of *ng* in *king*.
Palatals.	စ	ts	t when final	Has the power of *ts* in *mats*; when final and preceded by an inherent vowel its power is changed to that of *t* in *mat*.
	ဆ	tsh	None	Aspirate of the preceding. It is pronounced *ts-h* not *t-sh*.
	ဇ	dz*	None	Has the power of *z*.
	၎	dzh*	None	Aspirate of the preceding.
	ည	gny	ee when final	Has the power of the Italian *gn* in *Signor*; when final it has the power of *ee* and sometimes of *ey*.

* *z* and *zh* have been erroneously substituted in the work.

Cerebrals.—These are not used in Burmese proper names or in words not derived from the Pali.	ꩡ	t	None	This letter has the sound of *t* pronounced by placing the tongue far back against the palate.
	ꩢ	ht	None	Aspirate of the preceding.
	ꩣ	d	None	Lingual *d* pronounced by placing the top of the tongue against the palate.
	ꩤ	dh	None	Aspirate of the preceding.
	ꩥ	n	None	Lingual *n*.
Dentials.	ꩦ	t	d	The usual sound is that of *t* in *time*; but it is changed to *d* in certain combinations.
	ꩧ	ht	None	Aspirate of the preceding.
	ꩨ	d	None	Has the sound of *d* in *dew*.
	ꩩ	dh	None	Aspirate of the preceding.
	ꩪ	n	None	Has the sound of *n* in *none*.
Labials.	ꩫ	p	b, k, t	The usual sound is that of *p* in *pen*; but when final and preceded by an inherent *a* its power is changed to that of *t*; and when preceded by any other vowel its power is permuted to that of *k*; sometimes when initial it is pronounced like *b*.
	ꩬ	hp	None	Aspirate of the preceding.
	ꩭ	b	None	Has the power of *b* in *bag*.
	ꩮ	bh	None	Aspirate of the preceding.
	ꩯ	m	n	Has usually the power of *m* in *man*, but when final and preceded by *ie* or *oo*, its sound is permuted to that of *ng* or *n*.

Burmese initial form.	Usual English equivalent.	Permutations.	
	CONSONANTS—(*concluded*).		
ယ	y	None	Has the power of *y* in *young*.
ရ	r	y	Had originally the power of *r* in *run* and is so pronounced in Arakan but as the pure Burmans affect to be unable to pronounce the *r* they pronounce it as if it were *y*. When combined with *h* the two have the power of *sh* in *shout*.
လ	l	None	Has the sound of *l* in *land*.
ဝ	w	None	Has the power of *w* in *war*.
သ	th	None	Has the soft sound of the English *th* as pronounced in *then*, not the hard sound of these letters as in *thick*.
ဟ	h	None	Has the sound of *h* in *hand*.
ဠ	l	None	Has the sound of *l* in *land*; not used in Burmese proper names or words not derived from the Pali.
ं	ṅ	None	Placed over letter (it is not used with all) has the power of *n* in *tan*.

No written vowel is ever mute. *Gale* (small), for instance, is a word of two syllables, *viz.*, *Ga-le*.

A final consonant, that is one in which the sound of the inherent *a* is destroyed by the "killing" mark ် placed over it, is not pronounced (for no consonant can be pronounced without a vowel sound) but, as it were, an unsuccessful endeavour, only, to pronounce it is made.

TABLE OF CONTENTS.

Chapter.		*Page.*
I.	Physical Geography	1
II.	Geology and Economic Mineralogy	32
III.	Forest and other Vegetation	68
IV.	Ethnology	141
V.	Religion	193
VI.	History: From the earliest times to the close of the Thirteenth century	235
VII.	History: From the close of the Thirteenth century to the first half of the Sixteenth century	254
VIII.	History: From the first half of the Sixteenth century to the middle of the Eighteenth century ...	276
IX.	History: From the rise of Aloung-bhoora (1754) to the death of Bhodaw-bhoora (1819)	297
X.	History: From the death of Bhodaw-bhoora (1819) to the rebellion of Prince Tharrawaddy (1837) ...	325
XI.	History: From the rebellion of Prince Tharrawaddy (1837) to the close of the second Anglo-Burmese war (1852)	350
XII.	Manners and Customs	376
XIII.	Arts Manufactures, Agriculture and Prices	410
XIV.	Population, Revenue and Trade	442
XV.	Administrative History	477
XVI.	Mammals	538
XVII.	Ornithology	569
XVIII.	Reptilian Fauna	605
XIX.	Ichthyology	641
XX.	Land, Fresh water and Estuarine Mollusca	698

ERRATA.

Page 21, line 16, from bottom *for* 'a westerly,' *read* 'an easterly.'

,,	23	,,	10	,,	,,	,,	'S. E.'	,,	'S. W.'
,,	27	,,	14	,,	top	,,	'Pawatanor'	,,	'Pawata nor.'
,,	28	,,	20	,,	bottom	,,	'West'	,,	'East.'
,,	45	,,	9	,,	,,	,,	'interrupted'	,,	'uninterrupted.'
,,	118	,,	9	,,	,,	,,	'Thit-kha (*Cedreela toona*) and Thit-ka-do (*Pentace burmanica*)	,,	'Thit-kha (*Pentace burmanica*) and Thit-ka-do (*Cedreela toona.*
,,	119	,,	15	,,	,,	,,	'eastwards'	,,	'westwards.'
,,	..	,,	9	,,	,,	,,	'east'	,,	'west.'
,,	148	,,	16	,,	,,	,,	'first row, horizontally'	,,	'first vertical row.'
,,	170	,,	2	,,	,,	,,	'weed the wild [things]'	,,	'weed the grass, the wild [things.]
,,	171	,,	11	,,	top	,,	'*man*'	,,	'*khon.*'
,,	..	,,	16	,,	,,	,,	'*tska*'	,,	'*tsha.*'
,,	..	,,	27	,,	,,	,,	'*Tshe*'	,,	'*Tsha.*'
,,	172	,,	20	,,	,,	,,	'six is and'	,,	'six is *khie* and.'
,,	..	,,	21	,,	,,	,,	'seven is and'	,,	'seven is *mwie* and.'
,,	..	,,	22	,,	,,	,,	'eight is and'	,,	'eight is *khaw* and.'
,,	..	,,	23	,,	,,	,,	'nine is and'	,,	'nine is *kwie* and.'
,,	173	,,	3	,,	,,	,,	'passes into'	,,	'passes into *r.*'

Throughout the earlier portion of chapter V. 'Thong-gha' has been mispelt 'Thanga.'

,,	198	,,	11	,,	top	,,	'body of the work'	*read*	'second volume.'
,,	216	,,	21	,,	,,	,,	'father'	,,	'pat-ta.'
,,	229	,,	13	,,	bottom	,,	'idler'	,,	'older.'
,,	244	,,	16	,,	,,	,,	'Pegu'	,,	'Burma.'
,,	..	,,	note	,,	,,	,,	'*Vide* ante, pp.'	,,	'*Vide* ante, page 156.'
,,	255	,,	4	,,	,,	,,	'1359'	,,	'1351.'
,,	263	,,	12	,,	top	,,	'forty'	,,	'twenty.'
,,	269	,,	3	,,	,,	,,	'1421'	,,	'1422.'
,,	272	,,	9	,,	,,	,,	'reigning three years'	,,	'reigning there three years.'

Page	273	line	9	from	top	*for*	'1581'	*read*	'1501.'
,,	279	,,	9	,,	bottom	,,	'1546'	,,	'1549'
,,	281	,,	15	,,	top	,,	'Pagan'	,,	'Prome'
,,	282	,,	13&17	,,	,,	,,	'Won-boung'	,,	'Oon-boung.'
,,	325	,,	1	,,	,,	,,	'two'	,,	'several.'
,,	,,	,,	10	,,	bottom	,,	'Musut.'	,,	'Marjit.'
,,	331	,,	20	,,	,,	,,	'24th'	,,	'13th'
,,	,,	,,	,,	,,	,,	,,	'23rd'	,,	'28th'
,,	338	,,	22	,,	top	,,	'Rs. 2,000,000	,,	'Rs. 20,000,000.'
,,	341	,,	2	,,	bottom	,,	'Rs. 250,000'	,,	'Rs. 2,500,000.'
,,	342	,,	7	,,	top	,,	'Rs. 250,000'	,,	'Rs. 2,500,000.'
,,	,,	,,	21	,,	,,	,,	'Rs 1,000,000'	,,	'Rs. 10,000,000.'
,,	,,	,,	12	,,	bottom	,,	'87th'	,,	'89th.'
,,	364	,,	7	,,	top	,,	'5th'	,,	'51st.'
,,	384	,,	8	,,	bottom	,,	'takes'	,,	'taking'
,,	450	,,	22	,,	top	,,	'Toung-ngoo'	,,	'Toung-ngoo.'

,, 501 in the column of the table headed Personal, opposite the year 1878, enter 721.

,,	555	line	7	from	top	dele	'*Macrotis.*'		
,,	588	,,	15	,,	bottom	*for*	'Timeludæ'	*read*	'Timeliidæ.
,,	601	,,	16	,,	,,	,,	'Hæmatopidæ'	,,	'Hæmatopodidæ.
,,	626	,,	6	,,	,,	,,	'*H. maculatus*'	,,	'*H. maculata.*'
,,	639	,,	15	,,	top	,,	'*T. cineraceus*'	,,	'*I. cineraceus.*'
,,	655	,,	10	,,	bottom	,,	'Sciænœidæ'	,,	'Sciænidæ.'
,,	690	,,	15	,,	,,	,,	'211 *Chibacala*'	,,	'211 *Ch. bacaila.*

CHAPTER I.

PHYSICAL GEOGRAPHY.

BRITISH BURMA, the most easterly of the provinces forming the British Empire in India, lies on the coast of the Bay of Bengal and extends from the Naaf estuary in about 20° 50′ N. to the Pak-chan in 9° 55′ N. To the north is the Chittagong division of the lower provinces of Bengal, the Naaf forming the boundary near the sea-coast, whilst further inland towards the crest of the main range of the Arakan Roma mountains the boundary, which would traverse a tangled mass of hill and forest, has never been laid down. The eastern boundary is marked by the crest of the Arakan mountains as far south as the "Ever-visible Peak" in 19° 30′ N.: here the line turns eastward and passing throughout its length over a succession of hill and dale, it crosses the Irrawaddy at the 53rd mile, the crest of the Pegu Roma at the 93rd, the Tsit-toung river (here called the Poung-loung) at the 123rd, and then, striking the main water-shed between the Tsit-toung and the Salween rivers, it turns south to the source of the Hpa stream, which it follows eastward to the Salween. On the other side of this line from the extreme north-west towards the Tsit-toung lies Upper Burma and on the north-east the Red Kareng States. From the "Ever-visible Peak" to the crest of the Poung-loung range the frontier is marked by a line of masonry pillars erected, after the annexation of Pegu by Lord Dalhousie in 1852, at distances apart varying from ten to two miles, but everywhere else by natural boundaries. From the mouth of the Hpa southwards to the mouth of the Thoung-yeng the Salween marks the frontier, Zengmai, a State tributary to Siam, lying to the eastward. On the north-east and east the Thoung-yeng from its mouth to the gorge through which it flows and thence southward to the source of the Pak-chan, a high chain of mountains, the central axis of the system which drains itself into the Gulf of Siam and the Bay of Bengal, and still further south the Pak-chan itself, separate the province from Siamese territory. Everywhere west and south

the shores are washed by seas of the Bay of Bengal. The area comprised within these limits has never been completely surveyed but is estimated at eighty-eight thousand five hundred and fifty-six square miles.

Coast.

The coast line southwards to the Sandoway river is broken into numerous low islands by a network of vast estuaries and creeks communicating with each other and with the sea; at high water the tide spreads over the country for a considerable extent, leaving at the ebb broad miry deposits on either bank of the channels. The whole coast is in fact rather indented by spacious inlets receiving mountain torrents than broken by the passage of rivers of magnitude.

From the mouth of the Sandoway river to Cape Negrais the features of the coast are altogether changed, presenting in every direction a rugged and rocky barrier to the ocean with few available places of refuge for vessels in distress, whilst towards the south "precipitous spurs, offshoots from the Arakan range which runs "parallel to, and at no great distance from, the coast, jut boldly "into the sea, forming conspicuous headlands, fenced round with "rocks strewn in every conceivable form of disorder and, as if "not sufficiently forbidding in their frowning crests and rugged "bases," they throw far out to seaward "sunken and unknown "reefs; and yet these cliffs have their charm in the extensive "prospect afforded from their summits and the music of the water "ever dashing at their feet. Between them are shell-bespangled "sandy bays, inviting from the quiet repose that pervades them, and "doubly so from the pleasing contrast afforded by their retiring "forms and the gently undulating downs that frequently con-"stitute their back ground, occasionally allowing a glimpse of "grander scenery through the unexpectedly developed opening "through which some mountain stream*" escapes to the sea.

Beyond Pagoda point the coast line turns almost due east and, eastward of the rocky cliffs of Poorian point at the southern extremity of the island separating the Bassein from the Thek-gnay-thoung mouth of the Bassein or Nga-won river, its character and appearance entirely change: the bluffs and rocks give place to a flat and sandy beach with narrow grass-covered plains running along its margin and numerous mud and sand banks, many dry at low tide, stretching out to seaward and rendering the whole coast unapproachable within nine or ten miles by vessels of large size, except in a few places where channels are kept open by the streams

* Geography of the Province of Pegu, by Lieutenant E. C. S. Williams. Selections from the Records of the Government of India (Foreign Department), No. XX. (1865), p. 9.

of rivers. The most important of these banks are the Baragoua flat, the southern extremity of which is in 15° 29′ 30″ N. and 95° 12′ E. off the mouth of the Kyoon-toon river, where the coast line turns N. E. and the Krishna shoal, a narrow ridge about one mile wide with a three-fathom channel between it and the shore, extending in a N. E. direction from 15° 36′ to 15° 47′ N., formerly marked by an iron pile light-house and, since that has been washed away, by a light-ship.* From the mouth of the Tsit-toung river at the head of the Gulf of Martaban the coast, still retaining its character, trends east and then south to Bhee-loo-gywon opposite Maulmain. Thence to the Pak-chan almost the whole coast is lined with a belt of mangrove, forming a powerful barrier against the sea, with here and there small fertile plains or hills of moderate height intervening. These mangrove lands are one mass of soft and often fœtid mud protected by a net-work of the fantastical looking roots of the mangrove standing above ground. They are intersected by numberless small canals through which the tide enters and recedes, inundating the whole area at high water. South of the mouth of the Tavoy river the coast line, studded with the almost innumerable islands of the Mergui Archipelago, is for several miles inland but little raised above the level of the sea and is divided into countless islets by the channels into which the waters of the rivers spread as soon as they leave the higher ground in the interior.

Topographically considered the province consists of four well marked and distinct portions.

In the west is a triangular strip of country with the apex to the south: the north of the tract is a tangled mass of forest-clad mountains, the offshoots of the Arakan Roma, drained by countless torrents which unite and reach the sea through one or two main rivers; towards the west and south it passes into rich alluvial plains intersected by a net-work of tidal creeks, shut in on the east by the Arakan mountains which, as they gradually near the sea until they end at Hmaw-deng or Pagoda point, throw out wooded spurs and cross-spurs, filling the face of the country to the exclusion of the plains and stretching out seaward in reefs and detached rocks, rendering all approach to the iron bound coast dangerous in the extreme to sea-going vessels. The greatest length of this tract is about five hundred miles and its breadth in the north about one hundred. The plain country contains some of the finest and most fertile portions of the province: it is from

* A survey made by the Master-Attendant of Rangoon in January 1878 would seem to show that the shoal itself has been swept away.

them that are obtained the rice cargoes of all the vessels leaving Akyab, and it was from them that the exports of grain were annually made which not unfrequently preserved large districts in the Burmese Empire from the effects of drought.

East of the Arakan Roma are the valleys of the Irrawaddy and of the Tsit-toung: both narrow and mountainous in the north, they gradually widen and, a little to the north of Rangoon, the Pegu Roma, the water parting between the two, ends and they unite to form a vast alluvial plain stretching southwards to the sea and extending from the Arakan Roma on the west to the Martaban hills on the east.

North of the Kyaik-hto plain, the east central portion of this tract, is a country in many respects similar to that in the north of Arakan, occupied by the Poung-loung and other parallel ranges of mountains and their spurs and cross-spurs, with ravines rather than valleys between them, drained by torrents which find their way seawards by the Bheeleng and Rwon-za-leng rivers; the whole is densely wooded and sparsely inhabited, chiefly by Kareng, and with hardly any cultivation.

Lastly, in the extreme east is a stretch of country bounded by the Salween and the sea on the west and the Dawna chain and main range on the east, about forty-seven miles broad in its broadest part opposite Maulmain, generally level in the north but with undulating ground here and there and fantastic outcrops of caverned limestone ridges starting suddenly from the plain, drained by three great rivers and gradually narrowing towards the south were the forest-clad offshoots from the high eastern chain fill the country and convert it from fields of waving rice into a sea of forbidding mountains.

To these may be added the Mergui Archipelago, a cluster of islands extending from the mouth of the Tavoy river to the extreme south, generally high and mountainous and, with the exception of those which are mere rock, covered from their summits to the water's edge with rich and varied foliage, presenting a beautiful variety of scenery.

Valleys.

That portion of the valley of the Irrawaddy which lies within the province extends from the northern frontier to the sea coast. In the north and for some ninety miles towards the south the bold mountainous offshoots of the Arakan Roma run down from the west to the bank of the Irrawaddy, in some instances losing their abrupt and bold nature as they reach the river but retaining the appearance of hills from two hundred to three hundred feet in height as at Gyo-beng-

toung and Doon-gyee-toung, in others breaking up into undulating ground, particularly in the vicinity of the larger streams: these leave but a small portion of the country fit for the purposes of cultivation. On the east of the Irrawaddy also the country is hilly and covered with forest, but about sixty miles from the frontier the hills recede from the river and below Prome an extensive and highly cultivated plain extends southwards between the Pegu Roma on the east and a low range of hills running parallel to, and a few miles inland from, the Irrawaddy on the west, whilst another but narrow plain lies between this low range and the river.

Below Akouktoung the delta of the Irrawaddy commences; the bold and rugged character of the valley subsides in the vicinity of the river into alluvial plains the breadth of which increases as the water-sheds diverge and their altitude diminishes. East of the Irrawaddy and separated from it by the low range alluded to above is the subsidiary valley of the Hlaing, which overlaps the dividing range in about the latitude of Myanoung and unites with the main valley. Still further south, in the neighbourhood of Rangoon, the Pegu Roma sink into the plain and the valley of the Irrawaddy, extending round eastward, unites with that of the Tsit-toung, absorbing the two small intermediate valleys of the Poo-zwon-doung and Pegu rivers. Westward of the Hlaing, the river which flows past Rangoon, the whole of the level country is intersected by a net-work of creeks which communicate with the Hlaing on the east and with the Irrawaddy on the west.

In the valley of the Tsit-toung the country to the west of the river resembles the north-eastern portion of the Irrawaddy valley. A few miles below the frontier the hills recede, giving place in the vicinity of the river to plains which gradually widen as Toungngoo is approached, carrying with them a continuous level strip on the opposite bank four or five miles broad beyond which the mountains rise with great rapidity. South of Toung-ngóo the plains on the west increase in width owing to the diverging course of the river, but a tract of wild country, about twenty-five miles in breadth, is left on the extreme west, forming an ocean of hills themselves sufficient to render penetration impracticable, independently of their covering of dense forest which, intermingled with bamboos, stretches over the plains where these are not cleared for cultivation, giving place below Shwe-gyeng and Bhaw-nee to elephant grass and cane. East of the Tsit-toung river the hills end a little south of the latitude of Tsit-toung and a flat country stretches away eastward beyond the Bhee-leng to the Martaban hills, the western water-shed of the Salween river in the lower portion of its course.

Thus a little north of the latitude of Rangoon the valley of the Irrawaddy and of the Tsit-toung join to form one large tract stretching along the seaboard from the Bassein river to the Martaban hills. Between the valley of the Tsit-toung and of the Irrawaddy are the two small valleys of the Pegu and of the Poo-zwon-doung rivers, which are merged in the great plain alluded to above. Scattered amongst the hills are smaller valleys, with a general east and west direction, drained by tributaries of the large rivers and gradually passing into the main valleys.

East of the Salween is a tract of level country bounded on the east by the Dawna chain and drained by the Hlaing-bhwai, the Houng-tha-raw, and the Attaran, undulating in the north and, as it stretches away southward behind the Toung-gnyo chain, gradually passing again into undulating ground and then into the mountains which form the southern boundary of the Amherst district. West of the Toung-gnyo chain and shut in by the Bay of Bengal is a tract of generally level country which widens considerably in the south, where it forms the valley of the Re. In the Tavoy district there is an alluvial plain round about Tavoy which reaches southward as far as Pyen-bhyoo-gyee, or to about the parallel of Tavoy point.

Mountains

There are four principal ranges of mountains all having a general north and south direction.

"In the Naga country between longitude "93° and 95° a great multiple mass of mountains starts south-"wards from the Assam chain; enclosing first the level alluvial "plain of Munipoor, at a height of two thousand five hundred feet "above the sea, it then spreads out westward to Tipura and the "coast of Chittagong and Northern Arakan,—a broad succession "of unexplored and forest-covered spurs.....Contracting to a "more defined chain, or to us more defined because we know it "better, this meridian range still passes southward, under the "name of the Arakan Yuma-doung (*Roma-toung*) till, seven hundred "miles from its origin in the Naga wilds, it sinks into the sea hard "by Negrais, its last bluff crowned by the Golden Pagoda of Moo-"dain gleaming far to seaward, a Burmese Sunium. Fancy might "trace the sub-marine prolongation of the range in the dotted line "of the Preparis, the Cocos, the Andamans, the Nicobars, till it "emerges again to traverse Sumatra and the vast chain of the "Javanese isles."*

The loftiest points of the chain are at its northern extremity on the confines of Manipur; further south the height diminishes

* Yule's Mission to Ava, p. 272.

but where it enters the province in the extreme north of Arakan the elevation again becomes considerable; the Blue mountain, in about 21° N. and 93° E.,is said to be upwards of eight thousand feet above the level of the sea. There it throws off a mass of spurs and cross-spurs in all directions, densely wooded and completely filling the country. The most important extends westward to the coast at A-ngoo Maw and forms the water-shed between the Naaf and the Ma-yoo. Though of no great elevation for some distance from the coast, the steepness of the slopes renders these hills impracticable except by the regular passes, of which there are five, the easiest being the most northern, whilst the two southern are used only by the inhabitants of the country, and the ascents of the two central are steep and practicable only by foot passengers. Continuing southward the main range gradually diminishes both in breadth and elevation. To the west the offshoots diminish in length, leaving a tract of alluvial land between them and the sea, gradually narrowing towards the south; whilst on the east, south of the frontier, where the greatest height is about four thousand feet, "the "range presents to view a serrated ridge of bleak, bold, barren "blasted peaks, connected by saddles of much less altitude, which "on their precipitous sides and the abrupt spurs thrown out from "them (mostly in a south-easterly direction) are covered with dense "and impenetrable forest. Further south the mountains, though "retaining their rugged character, pass into hills with an unbroken "coating of green, chiefly consisting of magnificent wild mango "and wood-oil trees, until at length the ridge dips into the Bay of "Bengal."*

From its entry into the province at the frontier of Pegu to the 17th parallel of latitude the direction of the main ridge, though it is crooked and irregular, is S.S.E.; from the frontier to 17° 35′ N. 5° E. of S. and below that 15° W. of S. The highest points in the range south of Upper Burma are the Kyee-doung (*Ever-visible*) peak on the frontier, Nat-oo-doung, and the singular looking double peak called the Shwe-doung Moung Hnitma (*Golden Brother and Sister Hill*). At the Kyee-doung peak there are two main ridges running nearly parallel to one another and of almost equal height.

With the exception of the Toung-goop, over which a road has been constructed, and of the An passes, the routes across these mountains "consist simply of a narrow line of footpath,

* Geography of the province of Pegu by Lieutenant E. C. S. Williams. Selections from the Records of the Government of India (Foreign Department) No. XX., (1856), page 5.

"rarely more than from six to eight feet wide, and so much over-"grown at the end of every monsoon as to render a great deal of "clearance of the lighter descriptions of brushwood and grass "again necessary before even foot travellers can thread their way "with facility.....The routes are used chiefly by traders who "are content to follow the track previously marked by the hill "tribes which they find sufficiently practicable and adapted to "the nature of the intercourse which they carry on.....In the "selection of halting-places they are principally guided by the "proximity of water, and to this cause is in a great degree "attributable the inequalities observable in the lengths of the "different stages in various parts of the mountain range."* These remarks are as applicable now as when they were made forty years ago.

The most northern pass is the Dha-let. This is but little used as water is scarce and the ascents and descents are extremely precipitous.

The next pass going southward is from the village of An on the stream of the same name in the Kyouk-hpyoo district to Meng-boo or to Tsheng-bhyoo-gywon, both on the Irrawaddy river, in Upper Burma. The total distance between An and Meng-boo is one hundred miles which can easily be accomplished in ten marches, and between An and Tsheng-bhyoo-gywon one hundred and twenty-five miles which can be traversed in twelve marches. For some distance the road goes over a level country and crosses the An four times at fords which are little more than two feet deep at the dry season of the year. Leaving this level ground the road "passes "up the sloping face of a massive spur which stretches nearly "in a westerly direction at right angles from the central ridge." The summit of the pass, which is four thousand six hundred and sixty-three feet above the sea, is thirty-one miles from An, the last eighteen being over a steep ascent and especially so in the last mile where the path has been carried up in a zigzag shape. The descent on the eastern side to the Kheng stream in the territories of the King of Burma is much more precipitous. For the next twenty miles beyond this stream the road passes over the bed of the Man river, a mountain torrent which flows through a defile varying from one to two hundred yards in breadth for the first ten miles and gradually widening out to from two to four or five hundred yards at the place where the road emerges, and continues either to

* Report on the Eastern Frontier of British India, by Captain R. Boileau Pemberton, 44th Regiment N. I., printed by order of the Supreme Government of India, page 99.

Tsheng-bhyoo-gywon or to Meng-boo over a level and thinly-wooded country. Water is obtainable at all the halting-places.

From Toung-goop in Sandoway a made road crosses the hills to Padoung in Prome.

South of these are other passes of little or no importance and used only by local traders; they are generally mere footpaths along the bed of a torrent with occasional short cuts across intervening spurs, impracticable for anything but a pack animal or a pedestrian and indifferently supplied with water; these will be found more fully described in the accounts of the Henzada, Sandoway and Bassein districts.

East of the Irrawaddy and forming the water-shed between that river and the Tsit-toung are the Pegu Roma. Gradually rising from the Re-me-theng plains, well north of British territory, the range stretches southwards with a general S. by W. direction to the frontier, where it inclines about 5° E. of S. Here it averages from 800 to 1,200 feet in height and for some sixty miles throws out spurs which on the west reach the Irrawaddy. Gradually increasing in altitude to 2,000 feet the main ridge, in 17° 55′ N., forks out into several long, low radiating terminal spurs forming the valleys of the Pegu and the Poo-zwon-doung rivers and others of less importance. Continuing as undulating ground, the range rises slightly at Rangoon where the summit of a low hill has been levelled to form the platform of the Shwe Dagon pagoda, and appears again south of the Pegu river in the low wooded line of hills on which stands the conspicuous Kyaik-khouk or Syriam pagoda, and finally disappears in the rocks which, just below Kyouk-tan, render the navigation of the Hmaw-won dangerous to the unwary boatman. Considering its low elevation the slopes of this range are steep and difficult and in the central portion it spreads out, especially to the eastward, into a wild wilderness of rugged hills covered with almost impenetrable forest,—the home of the tiger and the wild elephant. The whole range is thickly wooded with teak, cutch, iron-wood and other valuable timber. In the dry season water is scarce everywhere except in the neighbourhood of the mountain torrents. Towards the frontier the water when scanty is often brackish, sufficiently so indeed as to have induced the Burmese before the annexation of Pegu to boil it down for salt.*

There are several passes across the range from the valley of the Irrawaddy to that of the Tsit-toung but none are of any importance except those in the north. The most northerly is the

* Major Allan's report on the northern frontier, 1853.

Za-diep-hpo (*Nutmeg tree*). The road passes eastward up the valley of the Bhwot-lay, across the range, and then down the water-shed between the Za-diep-hpo and the Tsa-byeng rivulets, which unite with others to form the Khyoung-tshouk, a tributary of the Tsit-toung. The track is impassable during the rains and except during the dry season the country traversed is very unhealthy. The most generally used route runs from Thek-ngay-byeng in Myedai to the frontier Police post of Boora-goon on the Toung-ngoo side, a distance of between twenty and thirty miles. A road leading from Thayet-myo to Toung-ngoo by a more southerly route is now under construction. It leads from the village of Gnyoung-beng-kweng, near the south-eastern corner of the township, along the top of the spur forming the water-shed between the Pa-de and its affluent the A-lay, then for a short distance along the main ridge to the root of the spur which separates the Tshwa and the Kyet-tsa streams and this it follows to the plains; the first permanent village which it strikes is Tsee-let-to about six and a half miles from Toung-ngoo. The distance between Tsee-let-to and Gnyoung-beng-kweng is about sixty-one miles.

"Rising suddenly from the plains of Eastern Bengal, as from "a sea, about two hundred and twenty miles north of Calcutta," a chain of mountains "stretches eastward in a broadening mass of "woods spurs and ridges and grassy undulating table lands, taking "successively the names of the races which inhabit it,—Garos, "Kasias and Nagas of many tribes; ever increasing in the elevation "of its highest points from 3,000 to 4,000 feet among the Garos "to 6,000 among the Kasias and 8,000 and 9,000 in the region of "Munipoor, till, sweeping north-eastward in a wide mass of moun-"tain of which the general direction only is known, it emerges to "knowledge again as the Pat-koi, traversed by the Burman armies "in their Assamese inroads; farther on, abreast of the Brahmakoond, "it rises to a height of 12,000 and 14,000 feet and then, coming in "contact with the spurs of the waning Himalayas, lifts itself into "the region of eternal snow, and stretching still eastward embraces "its northern rival and forms that amphitheatre of snowy peaks, "glorious, doubtless, but as yet unseen by European eye, in which "the Brahmaputra has its earliest springs.

"This lofty prolongation of the southern chain, known now "as the Langtang, sends down from the snows of its southern "face the head-waters of the Irrawaddy. Beyond the eastern "sources of the river it strikes southwards a great meridian chain, "snow-capped in places like the parent ridge, and from old time "the bounding wall of China to the westward. It is called by the

"Singpho tribes, which cluster round the roots of all these moun-
"tains of Northern Burma, the Goolan-sigoung, and its offshoots
"stretch with a variety of breaks and ramifications, of which we
"know nothing precisely, but ever trending southward between
"the Irrawaddy and the Salween, till one of its great spurs almost
"reaches the sea near Martaban, where it parts the Salween from
"the big-mouthed Sittang (*Tsit-toung*)."*

At the frontier of the Province and for many miles to the south this chain and its offshoots form a mass of mountains filling the country. The direction of the whole line is generally N. W. and S. E., but the innumerable congeries of spurs abutting from the main system and forming the watercourses in the gorges down their flanks have no general direction but appear to be thrown up in eccentric masses perfectly bewildering. About fifteen miles east of the Tsit-toung is the subsidiary but almost independent Poung-loung range, varying from 2,000 to 3,500 feet in height: in the north its western offshoots approach close to the river and narrow the intervening valley to a breadth of five miles; towards the south the range gradually recedes till it is turned by the Youk-thwa-wa stream and is lost in the main chain.

Fifty miles east of the Tsit-toung the main range, with a bold outline and precipitous pine-clothed flanks, attains an altitude of 8,000 feet, and further north in Kareng-nee of 8,500 or 9,000. Stretching southward and gradually diminishing in height it throws off spurs, which in some places to the west as at a little above Kha-rwe, a village a few miles above Tsit-toung and at Tsit-toung itself, strike the Tsit-toung and ends between that river and the Bhee-leng in a line of hills which seem to have a general east and west direction from the Kyaik-tee-yo above Tsit-toung past the Ke-la-tha peak above Keng-rwa to the hills behind the town of Bhee-leng. Further east the mountains are continued in the Shwe-gnyoung-beng hills which end at the Kyoon-iek creek and re-appear on the southern side in the Martaban hills an almost independent chain, and still further east in a long spur which stretches down between the Bheng-laing and the Salween terminating in low undulating ground at the junction of these rivers.

The principal peak in this range, within British territory, is Nat-toung (*Spirit hill*) also called Nat-hte-toung (*Male spirit hill*) and Toung-goung-toon (*Bald-headed mountain*), six days' journey south-eastwards from Toung-ngoo, with an altitude of 8,000 feet.

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*Yule's Mission to Ava, pages 271, 272.

The upper portion is steep and bare (whence the name Toung-goung-toon), and the only way up is by a gully on the northern face where the trees affords means of ascent.

There are three principal routes from the valley of the Tsit-toung into the sea of mountains eastward, and two thence across the Salween to Zengmai. The most northern is from Hmoon by Kyouk-ta-ga to Kaw-loo-do and thence down the valley of the Rwon-za-leng, or more correctly perhaps down the ravine in which this river flows, to Pa-pwon, the head-quarters of the Salween hill Tracts. The second, called the central route, passes up the valley of the Moot-ta-ma, a small tributary of the Shwe-gyeng river, and turning eastward crosses the Bhee-leng and strikes the Rwon-za-leng a few miles below Pa-pwon. The lower route also passes up the valley of the Moot-ta-ma, but keeping more to the south it crosses the high Twot-ta-bhat hill and reaches the Bhee-leng at Pa-wa-ta, whence there is a fairly level track northward to Pa-pwon. From Pa-pwon there are two roads eastward, the one inclining N. E. to Kyouk-hgnyat and the other due east to Dha-kweng-tshiep, both places situated on the right bank of the Salween.

The Martaban hills, or as they are sometimes called the Zeng-gyaik hills from the highest point in the range, everywhere covered with tree forest and brushwood, extend southwards from Ka-ma-thaing, gradually increasing in altitude to Zeng-gyaik, some fifteen miles south of Tha-htoon, the pagoda-crowned crest of which is 3,500 feet above the sea : a little further south is the Koo-la-ma-toung peak 3,300 feet high : beyond this point the hills gradually sink till they end at Martaban in low heights abutting on the Salween. At Zeng-gyaik a spur is thrown out to the north-west which ends at Kaw-than, near Tha-htoon, and, with the main range, encloses the Dhe-ba-rien valley. There are three principal passes across these hills ; *(a)* in the north a tract leads from Thien-tshiep to Kyouk-tsa-rit on the stream of the same name at the eastern entrance of the Kyoon-iek; (*b*) from Tha-htoon a metalled road leads through the Gaw gap to Ze-ma-thway on the Ze-ma-thway creek, a distance of four and a half miles; and lastly (*c*) there is a path which crosses the hills at the head of the Dhe-ba-rien valley.

To the east of the Salween a high range of hills, called a spur of the Himalayas by Dr. Richardson the traveller, extends southwards and skirting British territory for some distance finally, from the gorge through which the Thoung-yeng river finds its way in 16° 27′ 47″ N. and 98° 50′ 50″ E. to the source of the Pak-chan in the south, forms the boundary which separates the province from Siam.

South of the gorge is Moo-lai-yit, an immense mass of granitoid rock in the shape of the frustrum of a cone rising to 500 feet above the general level and 5,500 feet above the sea, accessible only on the northern side whilst the eastern and western are sheer precipices. Below the cone the country is broad and open and the gently undulating surface, broken here and there by masses of granite, is covered with short grass and wild rhododendrons. From this peak innumerable spurs are thrown out in dense confusion, dividing and disseminating the drainage of the country. The most important is the Dawna which extends N. N. W. almost to the Salween and forms the western water-shed of the Thoung-yeng. Further south the high plateau with softly undulating hills gives place to barren limestone ridges "whose serrated crests rise "and sink in a most singular manner, creating curious shapes and "forms against the sky, some sharply defined in needle-pointed "cones, others with rough, toppling over, almost baseless summits." Below Re in Amherst nearly the whole surface of the country is broken up by an almost impassable net-work of densely-wooded hills formed by chains running southward and parallel with the main range, as the Nwa-la-bho and the almost independent line of hills between the Nwa-la-bho and the sea forming the western boundary of the Tavoy valley, whilst in Mergui a second chain extends northward parallel to the main range from a little north of the 11th parallel and confines the valley of the Tenasserim. From 11° 25′ N. to the extreme south is another low range forming the western water-shed of the Le-gnya and of the Pak-chan and joined to the main range between these two rivers by a cross-spur. All these have spurs and sub-spurs inclining in every direction. Parallel to the sea coast from Maulmain southwards is the Toung-gnyo chain, nowhere of any great altitude, the western water-shed of the Attaran.

In the Tenasserim division rising sheer from the plains are various isolated outcrops of limestone rocks generally with a north and south direction, some half hidden by straggling vegetation, others bare and white. Almost every outcrop has its one or more natural caves filled with sitting and recumbent images of Gaudama in all stages of decay and the sides and roof ornamented with smaller images in scarlet and gold.

South of the gorge through which flows the Thoung-yeng towards the Three Pagodas the surface of the country presents a varied aspect. Near that river the boundary lies in a high table land of laterite, whilst at the Three Pagodas the limestone ridge, the back-bone of the country, disappears beneath a confined plateau, with a surface consisting of reddish sand mixed with the debris of the

adjacent rocks, gradually sloping off east and west into the plains. A mile further south the ridge re-appears, but this formation extends only a short distance, when the whole country assumes a different aspect. The bare indented crest gives place to lofty ranges of igneous rocks whose central axis, clothed with luxuriant forest trees, pierces at intervals the clouds that sweep across its crest, forming a dark and regular outline. The view from the plateau is said to be in some respects grander than any in Switzerland. Ridges after ridges in succeding lines running in the same direction emerge one above the other in uninterrupted ranges or in broken, fantastically shaped heaps of intermixed limestone cones and peaks, presenting an amphitheatre of sixty miles in breadth, the horizon faintly contoured by a ridge of about 21,000 feet in elevation.

Rivers.

The Naaf, in the extreme north, is an estuary about three miles broad at its mouth and extending thirty-one miles inland. Inside the bar and outer shoals there are from seven to twelve fathoms of water, but this gradually lessens. At the usual place of crossing it is about a mile wide with a depth of from five to six fathoms in the centre and the current flows with a very moderate degree of velocity. The passage in large row boats occupies about an hour but in light country boats it takes about half that time. About forty miles south of the Naaf and separated from it by the Ma-yoo hills is the Ma-yoo, another great arm of the sea, about four miles wide at its mouth which is rocky and has a shoal bank on each side and a bar with from one and a half to two fathoms of water on it. It is usually crossed from the southern side of the promontory and the distance is considerably increased by the slanting direction which the boats are compelled to take to counteract the effect of the tide; the time occupied varies, according to the boat used and the strength of the breeze, from an hour and a half to three hours: if the wind is at all high a heavy swell sets in from the sea rendering the passage not only tedious but dangerous. Ten miles further inland the estuary is broken into two channels by an island very centrically situated and the passage can be much more easily effected here.

The Koo-la-dan is separated from the Ma-yoo by the island of Akyab, but they are connected by cross-channels which, though in some instances dry during the ebb tide, are all navigable by large boats on the return of the flood. This river rises in the mountainous country in the north and flowing in a general N. and S. direction falls into the Bay of Bengal at Akyab, where it is called by Europeans the Arakan river and by the natives of the country the

Gat-tsha-ba. The mouth, protected by the Borongo islands and Savage island, forms a spacious harbour, but the entry is rendered difficult by a sand bar. It is navigable for large boats for about one hundred and twenty miles beyond Akyab; above this it is a succession of rapids and shallows and its bed is excessively rocky. Its principal tributaries are the Tsala, the Rala, the Kola, the Palak, the Kan, the Mee and the Pee.

The Le-mro is an unimportant stream which rises in the north and falls into the sea in Hunter's bay. The Dha-let and the An, which both flow from the central ridge of the Arakan Roma, fall into the sea in Combermere bay. The former is navigable by boats of considerable burden as far as Dha-let, a distance of twenty-five miles; higher up the stream is a mere mountain torrent. The An is navigable during spring tides as far as An village, forty-five miles from the mouth, but at all other periods large boats have to stop five miles lower down. The Sandoway river is navigable by large boats as far as Sandoway; above that by canoes only. The Khwa is too shallow to be used by boats of large size except at its mouth which forms a good harbour, but the entrance is rendered intricate and difficult by a bar of sand on which at low water neaps there are not more than two and a half fathoms of water.

East of the Arakan Roma mountains the nature and general direction of the rivers are entirely different. The most important are the Irrawaddy including the Bassein mouth, the Tsit-toung, the Bhee-leng and the Salween.

The sources of the Irrawaddy have never been seen by European eye but in 1833 Lieutenant Wilcox published in the XVIIth volume of the Asiatic Researches, at pages 314 *et seq.*, an account of an exploring journey which he and Lieutenant Burlton had made in their direction. Having crossed the mountains on the west they arrived on the bank of a small river "eighty "yards broad, and still fordable though considerably swollen by "the melting snows: the bed was of rounded stones and both "above and below" where they stood they saw "numerous shal-"low rapids.....The scenery was of the finest order, and its "effect was heightened by the thin mists hovering on the bases "of the blue mountains. One majestic peak to the north peep-"ing from a mantle of light clouds was very conspicuous from its "superior height and from its deep covering of pure white snow, "and the lower ridge leading away from it to the westward "was similarly clothed but streaked with shadows of delicate "blue. On the east and west were peaks heaped on one another "in the utmost irregularity of height and form and at all distances.

"Our guide pointed out the direction of the two larger branches "uniting to form the river, the *Nan-kin*, by which name the *Kham-* "*tis* distinguish the *Irrawaddy* throughout its course to the sea, "and the *Nam-yen*, the western branch,* the mountain at the "source of the latter bearing 315° and the former 354.°" These two streams, called by the Burmans the Myit-gyee and the Myit-ngay (*large* and *small river*) unite in about 26° N. and flowing southward receive the Mogoung from the westward in 24° 56′ N. There, eight hundred miles from the sea, the Irrawaddy is nine hundred or one thousand yards across. Fourteen miles lower down it enters the first defile and Dr. Griffith's description is so accurate and so graphic that I give it verbatim. "The defile com- "mences about two miles below (*Tsheng-boo*) the river becoming "constricted from one thousand to one hundred and fifty yards. "The rush of water was great and was rendered fierce by rocks "which exist in the midst of the river. Still further within the "defile the difficulties were increased; at one place the whole of "the enormous body of water rushes through a passage, and it is "the only one, certainly not exceeding fifty yards in width. The "passage of this was really fearful, for on clearing it we were "encountered by strong eddies, back waters and whirpools, which "rendered the boat nearly unmanageable. These scenes continued, "varied every now and then by an expanded and consequently "more tranquil stream, until the gorge is passed well known by "the name of the 'Elephant and Cow,' two rocks which are "fancifully supposed to resemble the above named animals; the "defile then becomes much wider and the waters flows in a "tranquil and rather sluggish manner. The depth of the river in "this defile is, as may be supposed, immense. Mr. Bayfield "ascertained during his passage up, at a season when the waters "were low, that at many places no bottom was to be found at a "depth of forty-five fathoms."†

Little need be added to the description of the next portion of this river given by Colonel Yule, himself a very careful and accurate observer who also had access to unpublished manuscript notes made by others. "Emerging from the defile the Irrawaddy "expands again to its half mile or more, casts up sandy shoals and "encircles peopled islands; takes in from the eastward, some 150 "yards wide.....the Taping river, into which Klaproth by dint "of Chinese learning strove to cram all the waters of the Tsan- "poo, then straggles among sands in front of Bamo (*Bha-maw*)

* *Nam* means "water" or "river".
† Journals of Travels (Calcutta, 1847), page 137.

" .....A few miles below we pass Koung-toung-myo, where the " last invading Chinese army was discomfited (1769); and so, whilst " commencing to curve westward and north-westward in a great " double flexure, repeated in a less pronounced form below Ama- " rapoora, the river is drawn again between two rocky and pre- " cipitous fences constituting the second Kyouk-dweng *(defile)*."* The river is nowhere so confined as in the first defile and there are none of the cliffs jutting out into the stream with perpendicular faces, the water swirling round them and threatening to drive an ascending boat against them with crushing force, yet this defile is by no means deficient in rugged beauty. The breadth of the stream is suddenly contracted and the traveller passes from a varying expanse of stream, sand bank and island, with low thinly wooded banks and all the appearance of the river about Thayetmyo, between thickly wooded hills which on the left bank are suddenly relieved by the bare face of a lime stone cliff rising sheer out of the water; a little lower down, where the river narrows to 200 yards in width, the dark surface with no perceptible motion but a strong almost violent current below, there lies on the right bank a huge wedge shaped mountain with its broad end, bare but for a few hardy shrubs straggling over it, facing the river and rising in one unbroken front from the bed, as it were split by some great convulsion of nature. On the opposite bank where one would expect to find the other half of this mountain the hills slope back in regular gradation one above the other. Immediately below this precipice a rugged mass stands out by itself in mid stream with a small white pagoda on its summit. Gradually the river widens, the hills on either bank sink and the Irrawaddy again flows amongst sands and shoals.

Below Tsampanago the river enters a third defile, neither so decided nor so marked but much longer than the first and second. The banks are wooded to the water's edge " and slope down from " the hills whose steep sides form the valley of the defile, so as to " afford a continuous series of pretty views, without any grand or " imposing scenery"† *Olax*, *Fici*, *Leguminosa*, stunted bamboos, *Hippocrateacea*, *Mimosa* and *Stravadium* appear with *Adelia nereifolia*, *Cassia fistula*, a species of *Tectona* and, on sandy spots, a *Celsia*. About half way through the defile at the village of Thengga-daw close to the right bank is a small rocky island, which in

* Yule's Mission to Ava, page 275.

† " Through Burmah to Western China" by Clement Williams, Edinburgh and London 1868 p. 20.

the dry season is connected with the shore by a narrow spit of sand, crowned by a monastery and the Thee-ha-daw Pagoda. In the bay thus formed, and in the neighbourhood of the island wherever the current is not strong, are enormous dogfish which are perfectly tame. The best account of them that I have met with is that given by Dr. Williams at page 51 of his "Through Burmah to Western China." "As we drew near "the island I asked the boatman to call the fish, expecting to "see a few of ordinary size come to the surface. He hesitated "until assured that we had something to give them to eat, but at "length slightly ruffled the surface of the water with his out-"spread fiingers and called, with a coaxing voice, tit-tit-tit-tit, "when to our extreme astonishment, in less than half a minute "large mouths ten inches or a foot in diameter rose up to the gun-"wale of the boat gaping for alms. They were of a kind of dog-"fish some of them at least five feet in length and very broad at the "shoulders. Twenty or thirty crowded to the side of the canoe "and though not clamorous were ludicrously energetic in their "begging; some of them rising so far out of the water as to "lose their balance and topple back with a splash on their neigh-"bours. On the whole they were gentle and well behaved fish "and showed no quarrelsome disposition over our alms, though "there were twenty or more great mouths, and our charity was lit-"tle more than a morsel for one ..... so tame were they that they "allowed us to stroke their backs, and some of them had patches "of gilding on their heads." At the exit from the defile is the village of Tsheng-goo and its white pagodas in the foreground backed by dark wooded hills and the Irrawaddy below spreading out into a broad bay. "The valley of Ava may be said now to "commence. It lies entirely on the east side of the Irawadi, the "range of hills which terminates at Sagain *(Tsa gaing)* opposite "Ava hemming the river closely in on the west. .. .. At the "lower end of the valley, and immediately under the walls of "Ava, comes in the fine stream of the Myit-nge *(Myit-ngay)* from "the unvisited regions of the northern Shans. Just above this "the great river contracts from a mile and more in width to about "800 yards, in passing between the rocky roots of the Sagain "hills and an isolated temple-crowned eminence on the left bank, "and then deflects with a grand sweep suddenly to the westward, "washing on either hand the walls of Ava and Sagain. This west-"ward course is continued for forty miles through a richly wooded "and cultivated alluvial plain of no great width, bounded by some "barren rolling ground of no great elevation, till the river draws

" near the Kyendwen, when it bends again to the south, taking in " that chief tributary at as fine an angle as that of a railway junc- " tion. The extreme outlets of the Kyendwen are twenty-two " miles apart, the interval forming a succession of long, low and " partially populated islands."

" The lowest and largest mouth of the Kyendwen is tradi- " tionally said to have been an artificial cut made by one of the " Kings of Pagan, and which had been choked up for many cen- " turies till a flood opened it out in 1824 "*

Below this the river assumes the form of a spreading channel, from two to five miles wide, embracing numerous alluvial islands. " On the eastward elevated country hugs the stream " and generally rises from the water in bold decided banks " or cliffs of red soil."* On the west an extensive alluvial plain stretches into the interior as far south as Meng-boo rather more than twenty miles from the British frontier. Just above Meng-hla, where the stream runs with great violence, bold cliffs of red sandstone rise on the west bank " with lovely little " grassy nooks between, and fine wood clustering round the base " of the rocks and overshadowing the eddies."*

Entering British Burma at the northern frontier as a broad stream with numerous sandbanks, the Irrawaddy gradually contracts its width as the spurs of the Arakan Romas in the west and of the Pegu Romas in the east encroach upon its valley and its bed becomes broken, irregular and full of rocks. After passing through a fourth and last defile which ends at Prome it again spreads out and, below Akouk-toung, a spur of the Arakan Romas abutting on the river in a scarped and caverned rock some 300 feet high, the hills recede on both sides and a few miles lower down the delta commences. A short distance above Henzada a branch is thrown out westward which, under the name of the Nga-won or Bassein river, flows past Bassein and reaches the sea immediately to the east of Hmaw deng by two mouths, an island, deeply intersected with creeks, which ends in the rocky Poorian point, lying between them. Further south at Gnyoung-doon, where the Irrawaddy is 1¼ miles broad, the Pan-hlaing creek starts eastward and uniting with the Hlaing a little north of Rangoon forms the Rangoon river. In 17° N. Lat. another branch is thrown off westwards and flowing past Pan-ta-naw turns south-and falls into the Bay through the Pya-ma-law and Pyeng-tha-loo mouths. In about 16° 45′ N. a channel

* Yule's Mission to Ava. Pass.m.

starts eastward and arrives at the coast as the To or China Bakir, whilst in 16° 30′ N. another channel runs eastward and debouches as the Pya-poon. The main river continues southward and pours its waters into the sea by two mouths, the eastern called the Kyoon-toon, the western retaining the name of the parent stream. From 16° 45′ N. Lat. southwards all these main streams are interconnected by countless creeks converting the maritime delta, in the formation of which the sea has been and is being encroached upon by the deposit of the suspended silt, into a congregation of islands the channels between them fringed to the water's edge with mangrove and other forest and full at the flood but almost dry in many places at the ebb, shewing broad stretches of fetid mud.

The tide is first felt at Henzada and rises 2½ feet at Gnyoung-doon. From Rangoon to Ba-hmaw the river is navigable by light draught steamers. The discharge of the river has been calculated by various officers with greatly differing results. Lieutenant Heathcote gave it, from calculations made near the foot of the Tsa-gain hills, at 316,580 feet per second. Dr. MacClelland, on observations made at Prome in April 1853 when the river was about fifteen inches above its lowest level, at 105,794 cub. feet per second. Subsequently Mr. Login measured it just above the head of the delta and his calculations gave 75,000 feet per second. Mr. Gordon the Executive Engineer at Henzada, who is in charge of the extensive embankments along the western bank of the Irrawaddy and along the Bassein, has for some years made very careful observations at Myanoung and the annual average discharge he finds to have been, in metre tons of 37 c. ft :—

January.	February.	March.	April.	May.	June.
7,784,560,960	5,443,050,580	5,886,069,115	8,358,701,715	12,412,690,607	32,214,143,062
July.	August.	September.	October.	November.	December.
80,558,927,309	95,149,596,011	77,072,929,690	62,061,902,581	25,256 432,244	12,564,186,947

The average total annual discharge was, therefore, 418,945,381,942 Metre tons. The highest daily discharge during the period of observation was (20th August 1877) 2,040,123 cubic feet per second and the lowest (3rd March 1873) 78,966 cubic feet.

" As well as can be ascertained the areas drained by the " Irrawaddy in its course assuming its sources to be in the " Khampti mountains, are :—

" Mogoung river ...	... $5\frac{3}{4}$	sq. degrees
" At Amarapoora	...$13\frac{1}{2}$	" "
" At Prome ...	...31	" "
" At the head of the delta	$32\frac{1}{2}$	" " *

The principal tributaries of this great river north of British territory have already been enumerated. None of those south of the frontier line are of any great importance except as the channels by which valuable timber, the produce of the bordering ranges, is brought down. To the westward, with their sources in the Arakan Roma mountains or their offshoots, are the Ma-htoon or Meng-doon, the Made, the Kyouk-boo, all of which join it north of Akouk-toung, and the Pa-ta-sheng. The Meng-doon, a winding stream, rises in Upper Burma between two lofty peaks and falls into the Irrawaddy just above Kama, about fifty miles in a direct line from the spot where it enters British territory. Small boats can at all seasons ascend as far as Meng-doon, about twelve miles below the frontier. It has three principal affluents : the Pan-ee, navigable during the rains but little used on account of the strength of the current and the rapidity of the rise and fall of the water ; the Hlwa, a mountain torrent which, except in the rains, is a trickling brook; and the Hpoo which brings down a considerable volume of water during the rains and flows throughout the year. The Ma-de after an easterly course of about 30 miles falls into the Irrawaddy at Kama. In the dry season it is not navigable but in the rains boats of large size can ascend for some miles above Kama. The Kyouk-boo has a westerly course and reaches the Irrawaddy a few miles below Pa-doung, in about 28° 15′ N., having received at a short distance from its mouth the united waters of the Bhoo-ro and the Tha-nee : in the rains boats can ascend as far as Gnyoung-kyee-douk at the foot of the hills; thus far the banks are moderately steep and the bed sandy and gravelly, higher up the banks are very steep and the bed rocky. The Pa-ta-sheng has an easterly course of about 40 miles and falls into the Irrawaddy in about 18° 22′ N. Lat. a few miles above Myanoung. In the rains boats can ascend to Kyouk-pa-zat but the strength of the current, the forest drift which it brings down, and the rocks and boulders in the bed prevent their proceeding further.

The principal eastern tributaries are the Kye-nee, the Bhwot-lay and the Na-weng. The Kye-nee rises in Upper Burma and after running for some distance nearly parallel to the frontier line

* Yule's Mission to Ava. Passim.

4783

turns S. W. and falls into the Irrawaddy near Mye-dai. It is useless for navigation but brings down a considerable volume of water. The Bhwot-lay, known higher up in its course as the Pa-de receives numerous affluents and reaches the Irrawaddy at Bhwot-lay village. During the dry weather the water is only a few inches in depth and during the rains, when it brings down a large body of water, the current is so strong and the rises and falls so rapid that it is not navigable. Near its mouth it is crossed by a substantial wooden bridge 450 feet long traversed by the Rangoon and Mye-dai road The Na-weng, formed by the junction of the North and South Na-weng, the latter with two large tributaries the Khyoung-tsouk and the Teng-gyee, falls into the Irrawaddy at Prome. It drains a large tract of hilly country and in the rains, when it is navigable for some distance, it brings down a considerable volume of water. In the dry season the water is low and no boats larger than canoes can ascend it. A large number of teak logs are floated down annually and rafted at Prome.

The Bassein or Nga-won river, which is in reality the western mouth of the Irrawaddy, is important as affording ingress to large seagoing ships which ascend to Bassein for cargoes. It was known to the Geographer Ptolemy as the *Besyngas* and is spoken of by all travellers whose accounts of their visits to this country have been published. At the spot where it leaves the Irrawaddy it is both narrow and shallow, indeed in the dry season a sand bank cuts it off from the main river and the only water which it contains is that which percolates through. At Nga-thaing-khyoung it gradually widens and deepens and receiving the drainage of the eastern slopes of the Arakan Romas it is half a mile broad at Nga-poo-taw. Some miles below Nga-poo-taw the course is generally S. S. W. and many islands and rocks occur but navigation is by no means difficult. It is navigable by large ships as far as Bassein and for steamers of five feet draught as far as Nga-thaing-khyoung in the dry season. Steamers drawing ten feet can pass through into the Irrawaddy in the rains. The rise of the tide is nine feet at springs and six feet at neaps.

The Hlaing river rises in swampy ground a few miles east of Prome. Flowing southwards through various marshes it enters the great Engma lake at its northern end as the Zay, and leaves it in the south as the Myit-ma-kha. Its course is southwards through a valley separated from the Irrawaddy by a line of low hills. Below Hlaing it assumes the name of that village and, joined from the westward just above Rangoon by the Pan-hlaing,

it flows past that town, where it receives the united waters of the Pegu and the Poo-zwon-doung from the east, and reaches the sea as the Rangoon River. It is navigable at all seasons for vessels of the largest size for some miles above Rangoon and during spring tides ships of considerable draught can go for some 30 miles higher but, owing to the Hastings shoal at the junction of the Pegu, the Poo-zwon-doung and the Rangoon vessels drawing more than 16 feet cannot come up at low tide. In the dry season steamers of light draught can go up as high as Tsan-rwe (where it is 180 yards broad, the bed sandy, the tidal rise 2½ feet and the depth of water 4 feet); boats of from 200 to 300 baskets burden as far as Hle-tshiep, in about 17° 13′ N.; and small boats to Ta-pwon; the depth of water never being less than three feet, but the channel in many places is almost choked with jungle. In the dry weather the tide is felt above Hle-tshiep, and below Kywai-koo, a few miles further down, the water is not drinkable at the flood.

The Pegu river rises in the southern slopes of the Pegu Romas and after a S. S. E. course of about 50 miles to Pegu, where it is 105 yards broad and is spanned by a wooden bridge, it inclines south for about fifteen miles and then S. W. by S. for 35 to Rangoon, rapidly widening to 1½ miles at its mouth. At Pegu in the dry season it is almost dry at low tides and the rise with the flood is from 4 to 5 feet. On the east it communicates with the Tsittoung by several channels, the most important being the Paing-kywon which was artificially enlarged and straightened to form a canal between the two rivers. A new canal leaving the Paing-kywon some distance east of Kyaik-padaing and striking the Tsittoung at Myitkyo is now being constructed. A bore with a crest about three feet high sweeps up this river and its effects are felt at Pegu in the sudden filling of the early flood.

The Poo-zwon-doung river also rises in the southern slopes of the Pegu Romas but more to the westward. It has for the most part a S. by E. course of 53 miles disemboguing at Rangoon through a mouth about 440 yards wide into the Pegu at the junction of that river with the Rangoon. Thirty five miles up it is 50 feet broad and flows between high and steep banks, with three feet of water in the dry season and a tidal rise of 1½ feet. The banks towards the mouth are steep and muddy and the bed at the source is rocky. Boats can ascend for about forty miles.

Twenty-five miles north of Gnyoung-rwe at the head of the valley formed by the eastern mountains and on the west by the Pegu Romas, just beginning to rise from the Re-me-theng plain, are

the sources of the Tsittoung, a name given to the river below Shwe-gyeng and adopted by the English for its whole course, in part of which it is called by the inhabitants the Toung-ngoo and in parts the Poung-loung. Dr. Richardson who travelled through the country to Ava, and Captain Watson who with Mr. Sconce crossed its valley to Mandalay found a belief amongst the people that there was a subterranean communication between the Tsittoung and the great Gnyoung-rwe lake but this is improbable and nothing has been discovered which in any way substantiates the idea. The total length of the valley through which it flows is about 350 miles of which half lies in British territory. From the frontier nearly to Toung-ngnoo the banks are high and the country hilly; there the hills recede and an alluvial tract commences, extending in varying width towards the sea (the spurs in some places coming down to the river) till it joins the Pegu plain and the valley of the Irrawaddy on the west and sweeping eastward below Tsittoung it rounds the lowest ridge of the eastern mountains and unites with the Tha-htoon plain. The river's course throughout is tortuous, but especially so between Toung-ngoo and Shwe-gyeng so that its development would nearly double the length of the valley whilst large tracts are enclosed in reuniting loops of the river. Shallow and full of shoals in the dry season navigation above Shwe-gyeng even by large native boats is difficult but in the rains the river rises from 18 to 24 feet and is then navigable by river steamers as far as Toung-ngoo, and possibly for some ten or twelve miles further, but the ascent is difficult by reason of the great rapidity of the current. At Tsittoung the river is about half a mile broad. Seven miles lower down it takes a large serpentine bend west, north and south, and then rapidly widens out into a funnel-shaped mouth forming the head of the Gulf of Martaban. This bend protects the river above it from the violence of the bore which, however, at some seasons extends past Tsittoung and as high as Thayet-tha-maing; the tide is felt for some distance above Shwe-gyeng. The bore is felt in all the rivers of this coast from Hmaw-deng to the Martaban hills but is strongest in the Tsittoung. It was described by one of the early European travellers whose graphic and accurate account is given in Purchas.

"One of the most marvellous things in the world that nature "hath wrought, and I never saw anything so hard to be believed as "this, to wit: the great increasing and diminishing of the water at "one push or instant and the horrible earthquake and great noise "that the Macareo (*Bore*) maketh. We departed from Martaban

" in Barkes, which are like to our pilot boats, with the increase in " the water, and they go swift as an Arrow out of a Bow, so long " as the tide runneth with them, and when the water is at the " highest then they draw themselves out of the channel towards " some bank and they come to anchor, and when the water is di- " minished then they rest on dry land: and when the Barkes rest " dry, they are as high from the bottom of the channel as any " house top is high from the ground. They let their Barkes lie " so high for this respect that if there should any ship rest or ride " in the channel, with such force cometh the water that it would " overthrow ship or Barke. Yet for all this that the Barkes be so " far out of the channel and though the water has lost her greatest " strength and fury before it comes so high yet they make fast, " their prow to the stream, and often times it maketh them very " fearful and if the anchor did not hold her prow up by strength, " she would be overthrown and lost with men and goods. When " the water beginneth to increase it maketh such a noise and so " great that you would think it an earthquake, and presently at the " first it maketh three waves, so that the first washeth over the " Barke from stem to stern,* the second is not so furious as the " first, and the third raiseth the anchor,† and then for the space of " six hours. whilst the water increaseth, they row with such swift- " ness that you would think they did fly. In these tides there must " be no jot of time lost for if you arrive not at the stations‡ before " the tide be spent, you must turn back from whence you came. " For there is no staying at any place but these stations, and there " is more danger at one of these places than at another." The bore is occasioned by the union of two portions of the great tidal wave of the Indian ocean. Gradually contracting as it ascends the Bay one portion impinges upon the coast between Hmaw-déng and the Baragoua flats and thereafter travels eastward parallel to it towards the Gulf of Martaban, there it meets another portion which has swept up the Tenasserim coast and the two rush with a velocity of nearly twelve miles an hour up the Gulf into the Tsittoung. Here they are met by the waters of that river loaded with silt; these are checked, the silt being deposited and forming vast banks, and the accumulating waters of the tide overcoming the resistance " rear a curling threatening crest, forming a bore of sometimes nine

* More correctly "all round" the boat.

† The anchor is raised by the boatmen as the third wave passes.

‡ Positions, known to the boatmen, the most favourable for receiving the bore.

" feet, and sweep up the Tsittoung with ungovernable fury..... " overwelming everything they encounter." The shoals and sand banks which are thus formed choke the entrance and ships cannot make the river.

The principal tributaries in British territory are, on the west, the Tshwa, the Kha-boung, the Hpyoo, the Kwon, the Re-nwe, and the Bhaing-da and the Kaw-lee-ya which unite before joining the main river: all rise in the Pegu Romas. The Tshwa falls into the Tsittoung about 24 miles north of Toung-ngoo: boats of from 30 to 35 feet in length can ascend as far as Ayo-doung. It taps a richly wooded country and a considerable quantity of Teak and other valuable timber is brought down it. The Kha-boung reaches the Tsittoung just below Toung-ngoo and for some distance up is a fine broad stream. The mouth of the Hpyoo is 28 miles south of Toung-ngoo. The Kwon reaches the main river about 50 miles below Toung-ngoo; it is a fine stream 70 or 80 feet broad at the mouth with water in it all the year round: it forms the boundary, west of the main river, between the Toung-ngoo and the Shwe-gyeng districts. The Re-nwe is rocky near the source but sandy towards the mouth. The Bhaing-da and the Kaw-lee-ya are small streams of little importance.

The eastern tributaries are the Thouk-re-khat, the Youk-thwa-wa, the Moon, the Kyouk-gyee and the Shwe-gyeng. The Thouk-re-khat rises in the great eastern watershed, flows southwards for some miles, and then, turning west, empties itself into the Tsittoung about five miles below Toung-ngoo; it is little affected by the extreme drought of the hot season: it is an outlet for a considerable quantity of teak and other valuable timber, canes, bamboos, sessamum, &c. The Youk-thwa-wa rises east of the Poung-loung range and falls into the Tsittoung about ten miles north of Moon village, and forms an outlet for much betelnut, and for a little teak and other minor products. The Moon is a small and unimportant stream the mouth of which is near Moon. The Kyouk-gyee has a southerly winding course over a rocky bed and falls into the Tsittoung some miles above Shwe-gyeng. The Shwe-gyeng rises in the eastern mountains and reaches the Tsittoung at Shwe-gyeng. It is a sandy shallow stream not navigable by boats; at its mouth it receives from the south the waters of the Moottama.

To facilitate communication between Rangoon and Toung-ngoo a natural channel between the Pegu and Tsittoung rivers, with its eastern mouth at Kha-ya-tsoo, a point thought to be above the dangers of the bore, was artificially improved but the scheme did not answer and a larger canal from the Pegu river to Myit-kyo,

considerably above Tsittoung, is now under construction and is almost completed.

The Bheeleng rises in the mass of mountains between the Tsittoung and the Salween and has a generally southerly course of 128 miles to the sea. Until it reaches the plain country it is little else than a mountain torrent rippling over a pebbly bottom in the dry season and dashing with violence against the feet of the hills in the rains. Below Bheeleng it winds very considerably and spreads out into a mouth two miles broad filled with sandbanks through and over which a bore rushes with great force inundating the country round for miles but seldom passing the village of Shwe-hle, and in the rains making little or no way against the strong current. It is navigable by boats for a considerable distance but they cannot ascend much beyond Pa-wa-tanor dare they go down near the mouth. This river is known also as the Doon-won, a name derived from a village on its left bank below Bheeleng, once a fortified town.

Nothing is known with certainty of the source of the Salween: it is often laid down as the continuation of one of the two great rivers of Thibet shewn in the Lama's maps sent home by the Jesuits, as the Mekhong, the great river of Siam, is of the other, but the inferior volume of water discharged by the Salween is scarcely consistent with such a vast length of course as would thus be ascribed to it. One of the suite of a Burmese Ambassador to Pekin described the Salween to Buchanan as a much less important river than the Mekhong and the latter as being of a much longer course running round the sources of the other.* Most probably its sources are in the mountains which form the extension of the Himalayas eastward, to the north of the Chinese Province of Yunan. It traverses Yunan, and the Shan and Kareng-nee States to the south of that Province, as a rocky and rapid stream flowing through a narrow valley with scarcely any alluvial basins and with few inhabitants on its immediate banks. A few miles above the frontier, that is, 200 miles from its mouth Dr. Richardson found it to be 300 yards broad. In British territory, as far south as the mouth of the Thoung-yeng one of its tributaries, it is a broad swift stream navigable by boats and flowing between high and densely wooded mountains. Near the Thoung-yeng the channel contracts in places to 30 yards wide. Ten miles lower down are the great rapids, formed by a ridge of rocks which stretches completely across the river and is impassable by boats at all seasons. In the rains the rush of

* Yule's Mission to Ava p. 293 and note.

water over this ledge is so great as to dash to pieces even large logs of timber. Ten miles lower are other but less dangerous rapids; below this point the river broadens and is filled with islands and shoals which are covered during the rains, when the water rises over 30 feet. Below these the river again narrows and at the Kyo-dan, where it is about a third of its width higher up, it flows a deep, blue, clear, swift stream between two perpendicular banks. There, during the rains, a rope of woven creepers and canes is stretched across which checks the logs of teak, floated down by the foresters and let loose into the river, and enables the men to collect and raft each their own timber. Further south the Rwon-za-leng comes down from the westward and the Salween again widens and flows amongst sands. About twenty miles below the mouth of the Bheng-laing it receives the Gyaing and the Attaran and divides into two channels, Bhee-loo-gywon lying between them. The northern called the Darai-bouk, and by geographers the Martaban river, sweeps suddenly westward and flows past Martaban; it is not now navigable for sea going vessels. The main channel continues southward between Maulmain and Bhee-loo-gywon for 30 miles, reaching the sea at Amherst; this outlet is navigable by vessels of condsiderable burthen as far as Maulmain. After the first Anglo-Burmese war in 1826, when the Salween was fixed upon as the boundary between the country which remained to the King of Burma and that on the west which he ceded to the British, there was some doubt as to whether the Darai-bouk or the Amherst outlet was to be considered as the principal channel: the Burmans contended for the latter so that they might retain Bhee-loo-gyoon, the British for the former on the ground that some centuries ago when ships visited Martaban the Darai-bouk was the one always used. Two cocoanuts tied together were accordingly taken up the Salween and allowed to float down; at Martaban they remained stationary for a minute when, an eddy catching them, they were swept to sea by the Darai-bouk and Bhee-loo-gywon became British territory.

Of the affluents north of the Province nothing is known. In British Burma the principal are the Thoung-yeng, the Gyaing and the Attaran from the east, and the Rwon-za-leng and the Bheng-laing from the west. The Thoung-yeng, which throughout its course of 198 miles from beyond the great eastern chain to its mouth forms the boundary of the Province, rises in 16° 27′ 47″ N. and 98° 50′ 50″ E., and flows N. N. W. over a rocky bed between high and thickly wooded hills: it is not navigable by boats at any season.

The Rwon-za-leng has its source in the mountain mass separat-

ing the Tsit-toung from the Salween: the bed throughout is rocky and above Pa-pwon it is not navigable by boats: in the rains the current is violent and the ascent of the stream difficult.

The Bheng-laing, formed by the junction of the Kyouk-tsa-rit and the Doon-tha-mie, is navigable throughout its length but a sand bar at the mouth renders the entry difficult except at high tides.

The Gyaing, a broad shallow river, is formed by the junction of the Hlaing-bhwai and the Houng-tha-raw in 16° 34′ N. and 98° 3′ E. and flows westward to Maulmain.

The Hlaing-bhwai rises in the north of the Amherst district and flows southwards: it is navigable in the rains above Hlaing-bhwai, 85 miles from Maulmain, but in the dry season a bar below that village can only be crossed at high water springs.

The Houng-tha-raw rises in Siamese territory and crosses the frontier in 15° 41′ 19″ N. and 98° 35′ E. and flows N. N. W. at first amongst the spurs of a mountain range and throughout its course between high and wooded banks. The current is rapid in the rains and boats then ascend with difficulty. It is navigable beyond Mee-tan 80 miles from Maulmain. A peculiar feature of its valley is that it consists of several table lands separated by abrupt descents; one of these, from the numerous islands in the stream, is called the fall of the "Ninety nine islands."*

The Attaran is a deep and in the lower part of its course a sluggish river, formed by the junction of the Zamee and the Weng-raw, the former itself the result of the junction of five shallow and fordable rivers each thirty to forty yards broad the largest of which rises beyond British territory. From the pass of the Three Pagodas it has a general N. N. W. course and falls into the Salween with the Gyaing at Maulmain. Forty miles above Maulmain it is accessible to vessels of considerable burthen and is navigable by boats for forty miles more but the strong current here renders the ascent difficult.

The Tavoy river has its source in the mountainous country in the north of the Tavoy district and flowing S. S. W. reaches the sea at Tavoy point. In the upper portion it traverses a narrow valley, gathering its tributaries from the mountains on each side, and here the course is much obstructed. At Tavoy it is between three and four hundred yards broad and is navigable thus far by small coasting craft drawing not more than seven feet. Below Tavoy it widens considerably and, owing to the islands and banks,

* By Burmans, "Ninety nine" is used to designate a large number, as the ninety nine lakes of Tagoung, the ninety nine joints of the human body, &c.

large vessels are obliged to anchor at Goodridge plains 30 miles below the town. The rise of the tide is 14 ft. at springs during the N. W. Monsoon.

The Tenasserim rises in the Tavoy district in one of the high mountain stocks which traverse the country from N. by W. to S. by E., and flows northward. After being swelled by sixteen mountain torrents it is joined, at the old Shan town of Metta now a small village, by the Kha-moung-thwai coming directly from the north. Here, rounding the spur which has thus far confined it on the east, it turns south and runs parallel to its former course till, in about the latitude of Mergui, it turns westward and after receiving from the south the waters of the Little Tenasserim, a stream 118 yards broad at its mouth, it falls into the sea by several outlets. The valley of the Tenasserim before the river turns westward is highly mountainous and the stream is enclosed by steep banks; the bed is a succession of rocks and rapids. Below the mouth of the Little Tenasserim a reef of rocks runs across the stream, which in the dry season is only just passable by large boats: according to ancient accounts, however, large sea going vessels have ascended as high as Tenasserim town, at the junction of the two streams. The rise of the tide at Mergui is from 18 to 22 feet at springs.

The Pakchan has its sources in the angle formed by the main range and an offshoot of lofty hills which forms the water parting between the Ma-lee-won and the Le-gnya tracts. For the first fifteen miles of its course it is an ordinary mountain torrent but as it receives the drainage brought down by numerous affluents from the hills which bound its valley it gradually broadens and at Kra is 250 feet wide; seven miles lower down after being joined by another tributary it enlarges to 350 feet and thence it increases in width to its mouth where it is 2¼ miles from shore to shore, the last ten miles from the mouth of the Ma-lee-won, having more the appearance of a large inlet from the sea than of a river. From its source to Kra a distance of 30 miles the general direction is S. W.; the next few miles, down to the mouth of the Menam-naw-e, are very tortuous; after this the river runs direct to Victoria point. The total length from the main source to the mouth is 78 miles. Its principal affluents are the La-oon, which drains Renoung the mountainous region to the south in foreign territory, and from the west the Menam-naw-e and the Ma-lee-won. In the dry season the bed above Kra is almost dry and below this as the tide runs out flats and sand banks appear leaving at last a small channel 30 feet wide and 3 feet deep or less. Just below the mouth of the Menam-naw-e a ridge of rocks crosses the river which appear

as the tide falls leaving a narrow channel through which the river flows with considerable velocity. From the junction of the Ma-lee-won to the mouth the river is navigable by steamers. In the dry season the tide is felt ten miles above Kra where the rise and fall is eight feet. The banks for the last 45 miles are flooded at high tides and in consequence are covered with Mangrove and Neepa palms.

Lakes.

There are few accumulations of water worthy of the name of lake but many ponds and marshes, most of which dry up during the hot season. The principal are the Engma lake in the Prome district, the Htoo and the Doora in Henzada and the Sha-khai-gyee and the Eng-rai-gyee in Bassein. The Engma (literally *Principal lake*) is in the south of the Prome district, to the east of the low range of hills which shuts in the Poungday plain. It is about 10 miles long and four broad in its widest part and in the rains is from 12 to 15 feet deep and it can then be entered by boats of 250 bushels burden; in the dry season it is a reedy marsh. Fed by the Zay on the north, it is the source of the Myit-ma-kha which eventually becomes the Hlaing and the Rangoon river. The Htoo is in the Ka-noung township of Henzada on the right bank of the Irrawaddy from which it is about eight miles distant; in the north and west are low hills; during the rains it receives some of the drainage of the Arakan hills; the banks are low and marshy and the lake is gradually being silted up. The Doora is rather more than two square miles in extent and is in the Henzada township. The Sha-khai-gyee lake is in the Bassein district a little to the west of the Daga river; it is a fine sheet of water about four miles in length and about one third of a mile in width and during the rains is supplied with water from the Daga; in the dry season there are from eight to ten feet of water at the southern and three or four at the northern end. The Eng-rai-gyee is on the eastern border of the same district; it was formerly, probably, a part of the Daga river but is now a large tidal lake communicating with the Daga by a small channel, with a wooded island in the centre. Its average depth is from 15 to 30 feet but in places the depth is considerably greater.

CHAPTER II.

GEOLOGY AND ECONOMIC MINERALOGY.

Stretching, as the Province of British Burma does, through more than ten degrees of Latitude and exhibiting, as it likewise does, such varied physical conditions of surface, wherein are exemplified the mangrove swamps of the Tropics, the delta of a mighty river, barely emergent from the sea, the broad arable lands receding up the main valleys, and forest clad mountains surpassed only by such giant chains as the Himalayas and Andes, with a climate possessing a great range both in temperature and rainfall, it is no exaggeration to say that within the British possessions no equal area offers a more interesting field of observation to the Naturalist and Savant; or one more likely to repay the labour of the scientific enquirer in almost any department. Great difficulties, it is true, have to be encountered in such investigations owing to the denseness of the Forests which clothe so large a portion of the country, the sparseness of the population and the utter want of roads which renders free locomotion quite impossible, but to the Naturalist these drawbacks are in themselves a charm, and in the Forests of Burma one realizes that presiding sense of the grandeur and beauty of nature's works which few are so callous as never to have felt in such a scene, but which to the naturalist is a very wellspring of del ght. To the Geologist, however, it is somewhat different, as such prevalent conditions of surface as the above and such exuberance of vegetable life act in many instances not as a mere drawback but as an actual bar to any close examination of the ground. In the courses of the larger streams good sections are generally obtainable but these are the only facilities the Geologist in Burma meets with in the prosecution of his work. It is, therefore, a fortunate circumstance that the Geology of the Province is of a tolerably simple character, contrasted at least with that of some parts of India, though no doubt when the country is at some future period more cleared and greater facilities of examination thereby afforded many additions to our knowledge of the Geological structure of the Province, especially as regards greater precision of details, may be looked for. Our present acquaintance with the Geology of the different divisions is very unequal. Of Arakan little can

be said to be definitely known. In some districts it produces a limpid earth oil, very different from the Ava or commercial oil, but which is most probably derived from the same group of beds, though this is mere conjecture. Coal has been discovered in that division but its value is very problematical and its geological relations are undetermined.

As, however, Arakan would seem to be geologically, no less than geographically, the mere continuation of Pegu to the north these two divisions may conveniently be treated of together. Of Pegu our knowledge is much more precise. In 1855 Dr. Oldham visited and reported on the coal discovered near Thayetmyo and for some years past a Geological Survey of the division has been carried on and is now completed.

Of the Tenasserim division we know little in detail though some of the main points in its geology were established by Dr. Oldham and published in his report on the Tenasserim coal fields in 1854-5. His report gives a comprehensive and lucid account of the more important coal localities and their relative value in an economic point of view and gives a general sketch, likewise, of the rocks of the district and of the relation they bear to the beds containing the coal. The report also enters into the subject of the Tin deposits of the Province but, embracing mainly, as it does, the southern districts, does not enter on the interesting question of the metalliferous resources of the Shwe-gyeng district of which little trustworthy is known, though its mineral wealth is vaguely spoken of as something very considerable, a report certainly based on the occurrence at several spots of the ores of antimony, lead, silver and, perhaps, copper.

The Pegu division is traversed by two mountain ranges; the eastern or Pegu range which separates the valley of the Tsittoung from that of the Irrawaddy and the western or Arakan range which intervenes between the valley of the Irrawaddy and the sea. The eastern range has a pretty uniform direction, never greatly deviating from its general bearing of North by West, and may be considered as terminating to the south in the rising ground on which the great pagoda of Rangoon is built (the platform is, however, in part, at least, artificial) though no conspicuous hilly range exists for some miles farther North. Its elevation is much less than that of the Arakan range, few of its peaks rising to 2000 feet, though from the bold and precipitous character of its slopes, the result of the energetic aerial denudation it has been subjected to, it is not easier to cross than the loftier range. The western range is a much more important and imposing

one than the last. It is less regular in its direction, curving round gradually from North North West at the frontier to due North about the parallel of Henzada and thence gradually to a little more than North by East as far as Cape Negrais, displaying an irregular curve the convexity of which faces the sea. To the south its altitude is inconsiderable, especially west of Bassein, but in the Prome district it rises into magnificent forest clad peaks and spurs, many attaining a height of over 5000 feet.

Both ranges comprise a number of subordinate ridges and spurs which constitute a belt of hilly conntry varying from 20 to 60 miles in breadth and mostly clad in dense tree forest and, beyond a few footpaths across well known passes, totally devoid of any vestige of roads, save in the immediate neighbourhood of the villages skirting it, which are made by the inhabitants bringing out bamboos or timber for sale in the plains. In the rainy season all journeying in the hills is well nigh suspended as even along well traversed lines of road the channels of the main streams are invariably selected till they narrow towards their source and some spur is then ascended by a mere footpath. Both ranges have originated in a very similar manner, and probably simultaneously, through long continued and severe lateral pressure exerted on the beds forming them, the result being that the beds subjected to the forces in question have been thrown into a series of folds, sometimes moderate and sometimes very sharp, and by thus being, as it were, packed together have been elevated into what we recognise as the Arakan and Pegu ranges.

This is their origin regarded as mere lines of elevation of the earth's crust. Their present contour and all that affects their disposition of surface is the result of sub-aerial denudation, at this present in active operation, which, through the means of those powerful agents rain and rivers, has carved out the mountains as we behold them and is still engaged in deepening their gorges and eating away and modifying their slopes.

In geological conformation, however, the eastern and western ranges are utterly unlike. The eastern range, in common with the whole country lying between the Irrawaddy and Tsittoung rivers (if we except an outlier or two of crystalline rocks near Toung-ngoo), is composed of beds none of them older than the miocene or middle Tertiary period and wherein no intrusive rocks of any description occur,* whilst the western range is composed of two groups of beds;

* The trap shewn in Dr. J. M'Clelland's geological sketch map of Pegu would seem to refer to a trappean ash, a curious and very local bed, not intruded amongst, but regularly intercalated in, the miocene deposits.

a younger, of eocene or early Tertiary age, and an older group of, probably, Triassic age, with here and there scattered outbursts of serpentine.

The following are the different geological groups, in ascending order, met with in Arakan and Pegu.

Crystalline rocks of Toung-ngoo.—Age undetermined; perhaps comprise beds of different ages.

Axial or Arakan group.—Occupying the northern part of the Arakan range. Age probably Triassic.

Nummulitic group.—The entire Arakan range save a central portion just below the frontier. Age Eocene or early Tertiary.

Pegu group.—Occupying, with the next, the whole of the country east of the Irrawaddy to the Tsittoung and occuring to the westwards also. Age probably miocene or middle Tertiary.

Fossil wood group.—Most largely developed in eastern Prome. Age probably Pliocene or newer Tertiary.

Alluvium.—An older deposit in which the river channel is excavated and a newer deposit thrown down by the present stream of the Irrawaddy and other rivers and their tributaries.

Crystalline Rocks.

Crystalline rocks as a distinct group scarcely occur within either Pegu or Arakan. To the latter division, perhaps, the statement applies with some reservation on account of our imperfect acquaintance with its geological structure.

In the Arakan range chloritic schists and rocks which would be pronounced on universalogical grounds or hand specimens to belong to this group occur, but they are of local occurrence only and belong geologically to the group next to be described and have been produced by the contact and presence of serpentine among beds usually presenting much fainter traces of metamorphic action in Arakan.

The Axials or Arakan group.

The term Axials was originally proposed for a group of more or less altered rocks occupying the main axis of the Arakan range: it was, however, subsequently discovered that under this term two groups of rocks were comprised and it is now restricted to the older of the two groups constituting the main Arakan range for some forty miles or more from the frontier. South of the group the range is composed of Nummulitic rock more or less altered but never to the same extent as the restricted Axial group.

This group, the thickness of which does not probably fall short of 8,000 or 10,000 feet, embraces a very varied assemblage of beds of shale, sandstone, with here and there conglomerates, and a little limestone. The beds in general display, in addition to an excessive amount of mechanical disturbance and pressure, a certain amount of alteration, giving them a submetamorphic character exhibited mainly in a considerable amount of induration frequently accompanied by silicous infiltration and quartz veins, and by a subschistose lamination in the more argillaceous beds. In the vicinity, however, of the more considerable developments of serpentine the rocks assume a more distinctly crystalline character the schists becoming chloritic and the limestone white and saccharine in texture—but this is the exception.

The group may conveniently be divided into an upper and lower portion, an arrangement, however, which is merely an arbitrary one: what the lower beds rest on is not known neither have they yielded any organic remains which would serve as a clue to their age or aid in identifying their homologues elsewhere. They consist of sandstone and shales, usually considerably indurated and shattered by the disturbance they have undergone. The upper beds of the group are somewhat more variable and interesting. At the assumed base of the upper division occurs a dark shale containing a few fossils, very ill preserved and local; above this is the most distinctive bed of the group, a limestone varying from pale grey to dark blue which, though very much broken up, can be traced at intervals through the whole stretch of these rocks from the frontier downwards. This limestone very seldom contains any fossils or, which is more probable, the fossils have become indistinguishable or obliterated from the changes the rock has been subjected to, but in part of the Prome district a few specimens of echinoderms have been obtained, in an indifferent state of preservation, and a single specimen well preserved of a very Triassic Halobia (as the late Dr. Ferdinand Stoliczka, Palœontogist of the Geological Survey, considers it) which is at present the only guide to the age of these, rocks; beds of a similar age, it may be remarked, being distinctly developed in the North Western Himalaya (vide Stoliczka, on the Spiti valley, in memoirs of the Geological Survey). Above the limestone occurs a large group of beds of well marked character. They consist of shales and sandstone with numerous subordinate beds of conglomerate interspersed; the conglomerates consist mainly of white quartz pebbles and, where altered, almost pass into quartzite, the included pebbles, however, remaining very visible. The shales and sandstone are of a prevailing greenish or creamy grey tint

flicked with white which gives them a very characteristic appearance and is due to the presence throughout the beds of this portion of the group of what seem to be minute fragments of white felspar. This appearance is more or less perceptible in the finer sandstones but is more obvious in the coarser beds, many of which are of great hardness. Above this series shales and sandstones come in, not usually much altered and in consequence not always easy to distinguish from the lower beds of the Nummulitic group which overlies them. In none of these beds have any fossils been detected.

The useful mineral products are few and may be enumerated as follows :—building materials, alum shales, steatite, limestone.

Some of the sandstones would afford good material for building purposes but their position in the hills renders them difficult of access unless for purely local purposes, such as bridges and culverts for any future road and the like.

Of the shales Mr. Blanford remarks :—" Some of the shales in the Arakan hills contain iron pyrites to a considerable extent. In no instance that I have seen, however, was the quantity sufficient to render the mineral worth collecting for the manufacture of sulphur or of sulphuric acid."

A species of French chalk, which the Burmese use for writing on a black board and which is imported for that purpose from upper Burma, occurs pretty generally distributed throughout the Arakan range along a certain line on both its east and west flanks. The substance is decidedly the result of a peculiar metamorphism due, it would seem, to the presence of serpentine, in the neighbourhood of which it usually occurs, though some times it is found in spots where no serpentine is visible. It occurs massive and exhibiting a transition into shale, but the finer sorts are in amygdaloidal or linguiform pieces with burnished surfaces in a shaly matrix and sometimes enveloped in a thin layer of white quartz. It also occurs as a distinct vein together with quartz in altered sandstone, the two minerals reciprocally enveloping each other in different portions of the rock, but under whatever conditions it is met with it clearly presents itself as the product and accompaniment of the peculiar metamorphism of the shales and sandstone of the Arakan group which is connected with the development of serpentine in it.

Much of the limestone previously described as occurring in the group would be valuable for burning but it is far less accessible than the newer Nummulitic limestone lying nearer the plains :

as a building material or ornamental stone it is superior, if well selected, but these are not uses to which it is likely soon to be put and its position within the hills is against its employment.

The Nummulitic group.

This group attains a very considerable development in Pegu, extending the entire length of the division from the frontier to Pooriam Point at the mouth of the Bassein river. At the frontier these rocks are 24 miles broad (measuring West from Hpoung-aing) and repose on the subschistose beds of the axial group, but further south, in the Prome district, stretch uninterruptedly from the Irrawaddy to the sea. The group, however, is restricted to the west bank of the river as none of its beds are known to occur to the eastward within Pegu, that is to say along the central line of the Arakan range. The beds are usually much disturbed and display evidence of the great mechanical forces and pressure to which they have been subjected; they are, moreover, somewhat altered in places, but such alteration or submetamorphism is very capriciously developed and nowhere attains the intensity which is displayed by some of the beds of the older axials.

One of the lower beds of the group is a blue clay, generally devoid of fossils and supporting a thick sequence of shales and sandstone, not usually fossiliferous but with a few stringy seams containing small Nummulites. Above these some thin beds of Nummulitic limestone come in and again a series of massive sandstones reaching down to the river and constituting the picturesque rocks at Akouk-toung so familiar to all who ascend the Irrawaddy. The highest bed, or nearly so, is a thick bed of Nummulitic limestone which, however, is variable in this respect. It attains in some places to 60 feet and rests on a series of shales and sandstones, in which the "Coal" of Thayet-myo occurs, but going south its thickness diminishes greatly and at last it seems to die out as a continuous bed, being represented by a few calcareous courses in a thick bed of shale.

The "Coal" of Thayet-myo is found in an outlier of this group, isolated within an area of much younger rocks among which it has been protruded by some very sharp faulting. The "lime hill," as it is called, consists of three distinct hill masses; a westerly hill, which viewed from Thayet-myo looks like a shoulder of the "lime hill" but is really separated from it by a gorge through which the road towards the south winds; a central mass or the "lime hill" proper; and a low range to the south facing the village of Pienthaleng. The westerly hill contains neither coal nor lime and consists, probably, of lower beds of the Nummulitic group,

but this is not quite certain. The lime hill proper is a barn shaped mass with Nummulitic limestone scattered in various places over its surface and a deep gully intersecting the underlying sandstone and shales from which the coal was obtained. The Pienthaleng range to the south is of very inferior height and consists of some of the highest beds of the miocene group, against which the Nummulitic beds have been brought up by a fault with a W. N. W. direction. Another fault about N. by E., running close to the river bank, cuts off the Nummulitic beds so that they do not appear in the river, as remarked by Dr. Oldham in his report, and similar faults, though less sharply marked, must bound the hill on its opposite flanks where the ground is greatly overgrown by jungle.

The economic products of the Nummulitic group are coal, petroleum, brine, limestone and building materials.

The Thayet-myo coal, in addition to its disadvantageous position on the "Lime hill," labours under the usual drawback* which seems to characterise the carbonaceous deposits associated in India with the Nummulitic group, that is an irregularity both in extent and thickness, the result of local conditions at the time of their deposition and the probably different manner in which they originated from the more regular beds of both European and Indian Coal Fields proper. The age of the coal has nothing to do with its value, essentially or necessarily, (though this was a cardinal doctrine with the coal committee of 1846) but the surface conditions prevalent in India during the deposition of the Nummulitic group; it is an undoubted fact that the coal deposits of this age are more or less irregular and of capricious habit and consequently less valuable for economic purposes than the coal beds of other groups either older or younger.

Petroleum is known to occur at only two spots within Pegu, both on the west side of the Irrawaddy. The oldest known locality (from which, however, no petroleum is now extracted) is at Yenandoung, exactly twelve miles S. W. by W. from Myanoung, and lies within the area of the Nummulitic group. The other and more recently discovered locality is near the village of Padoukbeng, some seven miles W. by N. from Thayet-myo, and lies within the area of the newer Miocene group, the petroleum, no doubt, finding its any up through the younger beds from a more deeply seated source.

At Yenandoung the petroleum (or traces of it) rises in as-

* For details of this coal Dr. Oldham's report in 1855 may be consulted.

sociation with a feebly saline brine spring near an outcrop of Nummulitic limestone and accompanied by a copious evolution of Hydrogen, which readily ignites on the application of a light either to the bubbles as they rise to tne surface of the pool or to the cracks in the soil in the neighbourhood which serve as vents for its escape. The brine almost certainly rises from the underlying "Arakan" group, which is the saliferous group of the province, but in which no petroleum is known to occur, whilst there are good grounds for believing the petroleum to originate in certain beds of the Nummulitic group, so that in Pegu there would seem to be no connexion between the presence of brine springs and petroleum, wherefore any search for the latter mineral pursued on indications supplied by the presence of the former would probably result in disappointment, if carried on in any rocks lower in a geological sense than the horizon of the base of the Nummulitic group.

Salt was formerly largely manufactured from the feeble brine springs which rise in this group but the manufacture is now almost entirely given up. These springs are in some cases flowing but more usually are mere "pockets" in the crushed shales into which, when artificially enlarged, sufficient brine trickles to supply a few evaporating pans. These brine springs are ranged along the outer hills and seem to be connected with lines of disturbance in the strata through which they rise. The most important is the Tsha-dweng-gyee spring in the Henzada district. "The spring at which place" Mr. Blanford remarks in an unpublished report, dated April 1861, "is probably one of the most productive yet known in the region. The flow of water in the well was carefully measured by my fellow assistant, Mr. Fedden and found to be 57·15 gallons per hour or about 1370 in the 24 hours. By a rough experiment the water was found to contain 4704 grains of salt to the gallon, so that the quantity of salt daily yielded by this spring amounts to 920 lbs. avoirdupois, or 8 cwt. 24 lbs."

The limestone of this group is largely used throughout the province for the production of lime as it is more conveniently situated for access than the limestone of the older Arakan group which is used only very locally. The most promising localities for its extraction on a large scale are at Kyouk-thien-bhaw and Thamandewa in the Nga-poo-taw township of the Bassein district, respecting which Mr. W. Blanford remarks. "This is by far the most important locality, perhaps in the whole of Pegu. At Kyouk-thien-bhaw several very large masses of limestone crop out from the

alluvium on the river bank. The quantity here, though considerable, would, however, soon be exhausted if there were a large demand for lime. South of the village of Thamandewa a tidal creek stretches for some miles into the country and on the south of this creek the out crop of a bed at least 30 or 40 feet thick stretches across the country in a direction nearly S. 20° W. for a distance of about a mile, reappearing at intervals for a mile further, the most southerly point where it is seen being near the bank of the river not far from the village of Toung-gale : the quantity is inexhaustible, the quality good and the access easy, the Thamandewa creek being navigable for Burmese boats of the largest size, and perhaps at high tide for sea going vessels."

The only other variety of rock requiring notice in this group is a soft argillaceous sandstone, termed "Andagoo kyouk" by the Burmese, which is used as a substitute for marble in the manufacture of images of Gaudama, for which its softness and evenness of grain well fits it. It occurs at various spots along the outer line of hills west of Nga-thaing-khyoung, especially near Gyo-gan 13 miles S. W. by W. from that town where, according to M. W. Blanford, it is quarried in blocks 18 inches high, 12 broad and 4 or 5 thick which are sold to the carvers of images at the rate of 15 rupees per hundred.

Pegu group.

Above the last described group, but separated from it by no very manifest break, occurs the very thick and important Pegu group, so named from its solely constituting the Pegu range as well as most of the country east of the Irrawaddy together with a not inconsiderable space west of the river, which at the frontier stretches back sixteen miles from the river bank and terminates in a sort of wedge of hilly ground six miles W. by S. from Padoung. The group may roughly be subdivided into three parts, a lower, middle, and upper.

The lower division mainly consists of a series of beds of blue clay, to which the term Tsittaran shales may be applied from their being well exposed above the village of Tsittaran 8½ miles above Prome. The rock here is a very homogeneous clay of a clear light blue, pale when dry but darker here and there when wet. When dry it readily breaks up into small angular pieces and throughout presents scarcely a trace of bedding or lamination. Its dip is, however, exhibited by numerous irregular layers of fibrous marl or earthy limestone with a subcrystalline fibrous structure, which are interspersed through it, or by layers of hard yellow marl, much seamed or septari-

ated with calc spar. This clay seems entirely devoid of fossils and may perhaps embrace a thickness of 400 feet, though this is conjectural. The middle division or "Lower Prome beds," embraces a considerable thickness of massive argillaceous sandstone, grits and shales, the latter predominating towards the base. These beds are generally devoid of fossils and are well seen in the gorge above Prome, below the village of Zee-aing; their aggregate thickness is not far short of 1,500 feet. The upper division or "Upper Prome beds" are the most interesting of the whole. The bed which may be assumed as the base of this division is marked by the profusion in it of a species of Cytherea (C. Promensis) and Cardita, and forms the bank of the river nearly opposite the Prome Circuit House. From this spot to nearly opposite the mouth of the Naweng these upper beds occupy the bank and are many of them, both shales and sandstones, profusely fossiliferous. This division cannot be far under 610 feet but may be more. These fossils present a distinctly middle tertiary aspect in the opinion of the late Dr. F. Stoliczka, Palœontologist to the Geological Survey, but they have not as yet been fully examined. A dark blue clay seen near Kama and at other spots is charged with minute shells, foraminifera and other organisms, and either this bed or a very similar one is nearly the highest one seen in the Prome section.

Though both a thick and widely spread group there are few useful products to be enumerated from it. Some of the beds of sandstone might be turned to account as building stones, for which purpose they are well and conveniently situated in the gorge above Prome. The Petroleum locality, near Padouk-beng, is situated within the area of these beds but the oil is probably derived from an older group and the same may be said touching the brine springs at Nwa-ma-yan, Let-myoung and elsewhere on the east of the river. The only hot spring known to me in Pegu rises through this group in the bed of the Pade khyoung, close to its mouth and some three miles S. E. by S. from the "lime hill" below Thayet.

Fossil Wood group.

Above the last group and seemingly conformable thereto occurs a series of beds of no great thickness or extent at present, but which are interesting from being the source whence the enormous quantity of rolled lumps of fossil wood, so conspicuous an ingredient in the Irrawaddy gravel has been derived, and for containing, moreover, numerous fossil bones of extinct mammalia and reptiles.

The group is divisible into two portions, a lower one consist-

ing of a distinct bed of clay, and an upper one mainly consisting of sands and a little conglomerate, the highest bed of all being a loose sand in which fossil wood, in the form of silicified trunks of trees some of them 30 or 40 feet long, is plentifully present.

The clay is of a yellowish colour and very homogeneous and so much resembles the older alluvial clay of the delta that where it constitutes the surface of the country it might readily be mistaken for it, save from the fact of its surface being rarely altogether free from sand and inperfectly rolled fragments of fossil wood left after the more or less complete removal of the upper beds. Its thickness is not great and no organic remains have been discovered in it. Above this a rather varied assemblage of sandy beds occurs, in parts containing beds of very coarse conglomerate. These beds are characterised by the presence of the hydrated peroxide of iron, or brown hœmatite, in the form of nodular concretions of very regular though varied forms ; spherical, ovoidal, cylindrical, with both round and truncate ends, cubical, amygdaloidal &c., all the result of segregative arrangement in the mass whilst still in a plastic state. The concretions are always hollow and contain a nucleus of white argillaceous earth lying loose and shrunken in the cavity. Externally a thin crust of sand is usually agglutinated but this readily falls away on exposure, leaving a smooth surface : occasionally the ore occurs in seams or beds of a few inches in thickness and, where the rock is a coarse gritty sandstone, the ore occurs lining cracks and lacunæ in it, the result, seemingly, of shrinkage, which imparts to the rock its very peculiar slaggy appearance. This ore was formerly largely worked by the Burmese, but no furnaces are now in operation in Pegu where English iron and steel have superseded the local article.

This group does not stretch farther south than Prome in any force at present or reach more than twenty miles east of the Irrawaddy, having been everywhere largely denuded, but there is good proof of its having formerly extended nearly to Rangoon (if not everywhere coextensive with the older group on which it rests) in the presence amidst the gravilly accumulations skirting the hills of large logs of silicified wood of too great a size to have suffered any considerable transportation from their original site. West of the Irrawaddy it is almost entirely removed by denudation, a small patch alone remaining of the Fossil wood sand with logs in situ some three miles N. W. from Thayet-myo. In addition to the Fossil wood so plentiful in this group some of the beds contain numerous remains of vertebrate animals; Reptiles, Fish, and

Mammals. In some places the sandstone contains prodigious quantities of shark's teeth, of several genera, whilst in the coarser beds bones of Mammalia are locally not rare though they are generally so friable that a little exposure to the elements causes their complete disintegration and removal. A few bones, however, are occasionally found well mineralized, and in the condition of the fossils which have been brought, in all probability, from beds of this group from upper Burma.

The economic products are iron ore, potter's clay, sand and Fossil wood.

The iron ore would be a valuable one for the manufacture of excellent iron were iron not procurable cheaper from Eng'and. The lower clay is in some spots dug for the manufacture of earthen pots, but to a trifling extent. The sands, though generally too fine, would, in places, afford a useful material to the builder or for brick-making. The fossil wood, reduced to powder of different degrees of coarseness, is used in lieu of emery to polish the marble images of Booddha and for similar purposes.

Alluvium.

Two groups of alluvium occur, an older constituting the more open and flat portion of the valleys of the Irrawaddy, Tsittoung and other rivers, whose beds are ploughed deeply into it by river action; and a newer alluvium, confined to the beds of existing rivers and deposited after floods directly from their waters. This last is of very limited extent in Pegu, nowhere along the course of the Irrawaddy attaining a greater breadth than five miles (measured at right angles to the river channel) and averaging much less.

Igneous or intrusive rocks.

The only intrusive rock in Pegu is serpentine, which occurs in the form of small hills along the skirts of the Arakan range on the eastward. This serpentine causes, in its immediate vicinity, considerable alteration and disturbance among the rudimentary rocks, the axial or Arakan group being frequently converted into highly metamorphic schists &c. The disturbance of the newer Nummulitic group would generally seem to be purely mechanical, penetration by the disturbing influence of the serpentine having been noticed only near Sandoway, though the mechanical disturbance it has been subjected to is sometines not less than that experienced by the older group. The most considerable mass of serpentine occurs at the Bheedoung hills on the Ma-htoon khyoung, six miles from the frontier, and constitutes an area over five

miles in length, on the flanks of which the rudimentary beds have been converted into chloritic schists and the like.

Twenty seven miles from this in a S. E. by S. direction occurs a narrow range of serpentine three miles in length, and a little further on the Nattoung hill, also of serpentine. South of Nattoung two very small patches of serpentine occur west of Laydee, after which no considerable development of the rock occurs till a point is reached two miles W. of Kweng-kouk in the Henzada district. Here commences a number of small outbursts, over twenty in number and ranging over a belt of country nearly thirty miles in length, the most southerly point attained being on the Ngamo khyoung nearly in the parallel of Nga-thaing-khyoung. This rock if a little more accessibly situated would be valuable as a road metal, but Lemyethna on the Bassein river, which is the nearest point for the stone to be brought to water carriage, is ten miles or more from the quarry in a direct line, which would prohibitorily enhance its cost.

In Geological structure Tenasserim is entirely distinct from Pegu and Arakan, as will be seen by the following groups of rocks which have been discriminated by Dr. Oldham ;—in ascending order :—

Crystalline rocks.—Rwon-za-leng &c. Age uncertain, may embrace some of the following groups.

Mergui group.—Largely developed in the Mergui district. Age perhaps Silurian.

Maulmain group.—Well seen near Maulmain and Amherst. Age lower Carboniferous.

Tenasserim group.—This embraces the various Coal Fields in the southern part of Tenasserim. Age doubtful, but probably Tertiary.

Dr. Oldham in his report on the Tenasserim Coal fields thus describes the peculiar physical characters of the division. "The eastern boundary which separates the British territory from the dominions of Siam is but little known and is for the greater portion of its extent formed by an interrupted range of mountains, which in parts rise to peaks of between 7,000 and 8,000 feet elevation, but the average height of which does not exceed 4,000 to 5,000 in the northern portion of the provinces *(division)* diminishing to 3,000 and even less in the more southerly districts. The main direction of this range is north and south and the direction of the coast-line corresponds with this for the northern portion of the provinces *(division)* but trends gradually away to the east in passing southwards. The prevailing direction of the minor ranges of hills, and

consequently of the rivers, is also meridional. * * * * * * Through and across the line of the outer ridge the general drainage of the country is discharged by a series of gorges or narrow rocky channels through which the main rivers pass. At Henzai basin for example many rivers, the general course of which is north and south, unite and discharge their waters through a narrow gorge of nearly a mile in length. The Tenasserim river, east of Mergui town, in a similar way discharges the large body of waters which had accumulated throughout its extended north and south course together with the tributary waters of the Little Tenasserim and its affluents through a narrow rocky gorge ; and further south, at the river Le-gnya the drainage of an immense area is all discharged through a narrow rocky gorge. All these gorges have a common direction, nearly east and west, although the general drainage of the country and the course of the main streams is almost invariably north and south."

The Crystalline rocks require little notice as their relations have not been sufficiently studied to afford safe ground for remark but the following is Dr. Oldham's description of the Mergui and Maulmain groups.

Mergui Series.

"In general Geological structure Tenasserim appears to be tolerably simple, although the relation of the rocks at first prove very deceptive owing to the numerous dislocations and disturbances to which they have been subjected.

"Resting upon Granite a series of highly metamorphose rocks occur, exhibiting every variety, from perfect Gneiss and Mica slate to hard silicious slates occasionally chloritic, and to black and earthy but micaceous and glossy slates. Through these numerous veins of granite penetrate and ramify in every direction and of all sizes. These are only seen near to the immediate junction of the granite and the bedded rocks, and where this junction is not absolutely traceable the occurrence of similar veins points, I think conclusively, to its close proximity.

"Resting upon these there is (in the southern portion of the provinces *(divisio)* at least, a great accumulation of beds of a pseudo-porphyritic rock, deriving this aspect from imbedded crystalline fragments of felspar which weather out freely or become whitened on exposure. In its most normal character this is an earthy but highly indurated rock, with these small irregularly disseminated bits of felspar ; but this passes, by almost insensible gradations, on the one hand into hard earthy slaty masses with their disseminated particles, and on the other into grits, containing much rounded frag-

ments of quartz, quartzite, and these psuedo-porphyritic rocks themselves. These grits often become very coarse and largely conglomeritic. The intercalation and occasionally regular succession of these varied deposits renders the bedding of the series traceable, but the rocks have been subjected to very great disturbances and are found dipping in every direction and at all angles. These rocks form all the higher grounds of the outer ranges (as distinct from the central range of mountains dividing the British territory from Siam) in the southern portion of the provinces *(division)* but are only feebly represented in the northern portion.

"The general character of the series also varies materially in different parts of the southern provinces *(districts)*, the greater or lesser prevalence of grits and conglomerates and of hard sandstone beds affecting the general aspect.

"With this group of rocks and resting upon it appears to be associated a great thickness of dark coloured blueish and blueish black earthy beds, frequently thinly laminated and then presenting an imperfectly developed slaty structure. With these occur some beds of very hard, generally dark grey, quartzose grits. In parts, apparently from a greater amount of local igneous action, these slates become silky in aspect and much crumpled. These must be of considerable thickness although their immediate relations to the rocks occurring close to them are obscure. Taking them in connection with the psuedo-porphyritic rocks and the conglomerates and grits below the total thickness cannot be less than 9,000 feet. To these rocks as being best seen in the province *(districts)* of Mergui in all their varied character I would apply the distinguishing name of the "Mergui Series."

"Maulmain" beds.

"These are succeeded upwards by a group of hard sandstone beds often in thick and massive layers, with thin earthy partings often in their laminæ finer and more earthy. The prevailing colour is of a reddish or reddish white tint, but some of the beds are of a deep red and others of a yellowish earthy tint. A few of the layers are slightly calcareous and in the upper portion a few thin and irregular bands of earthy limestone of a blueish tint occur. In some of the softer and more earthy beds fossils occur, (Corals, Gasteropoda, Brachiapoda, Crustacea, &c.)

"Over these sandstones another series of grey shaly beds occurs. These are occasionally calcareous and when so yield fossils (Spirifera, Producta, &c.) and also pass occasionally into a soft black carbonaceous mass with nodular concretions of hard quartz. Some beds of sandstone, often of a dark colour, are associated with this

group. Above these come a series of no great thickness (150 to 200 feet) of fine soft sandstones, thinly bedded and with grey and pinkish coloured shaly layers intercalated, and upon these appears to rest the hard and thick limestone of the district, as seen near the Tenasserim river and in the southern part of the province *(divieion)*. This limestone is the representative of the great limestone which is seen so largely developed near to Maulmain and in the province *(district)* of Amherst but which is, comparatively speaking, sparingly present in the south. * * * The whole of these form one continuous series, and as some of the most important members of that series are best seen in the immediate neighbourhood of Maulmain, I would designate the group the "Maulmain" beds.

"The Maulmain beds and down in the succession I have given to the top of the Mergui group appear to me, as far as I can at present judge, to represent the same general geological epoch as the lower carboniferous group of European Geologists.

"The era of the "Mergui" rocks themselves is not so clear. In many cases pseudo-porphyritic beds have much the aspect of some of those curious and interesting igneous masses which are so common in the Silurian districts of England, whilst others of the coarse and hard and often almost corneous sandstones and conglomerates have all the lithological character of many of the European Devonian series, but as yet their lithological character is the only evidence as I could not trace any organic remains which could give a clue to their geological epoch. I have given their average thickness above as 9,000 feet but where most largely dedeveloped they are at least 11 to 12,000. The total thickness of the Maulma n group above, exclusive of the limestone, is about 5,000 feet, and the limestone itself (near to Maulmain) has a thickness, perfectly seen, of some 1,100 feet."

On the important question of the Tenasserim Coal Fields Dr. Oldham may here be quoted at some length.

Coal bearing group of Tenasserim.

"Upon the denuded surfaces and edges of the rocks hitherto described we find a series of beds of conglomerates, of sandstones, of soft and loosely coherent shales, and of *Coal*, which stretch at intervals over a very large portion of the southern part of the Tenasserim provinces *(division)*.

"The conglomerates are never very coarse, the pebbles seldom exceeding a few inches in diameter. The sandstones are fine, gritty and pebbly, clean white quartzose sands, or earthy and of a yellowish tint. The shale beds are of or bluish-green or blackish tint and very regularly disposed in thin and frequently repeated

laminæ. The coal itself is also regularly disposed in thin flaky laminæ, with minute earthy streaks marking its structure. Besides their unconformability with the lower rocks, and the difference in mineral character which these beds offer, there is a total difference in their imbedded organic remains. In some of the layers of the soft sandstones and shales numerous impressions of dicotyledonous leaves are found of a very recent aspect, and in the beds of papery shale which accompany the coal, (like much of the papery brown coal of Germany) are numerous fish scales and bones (but seldom anything like a perfect fish) of freshwater character. All these circumstances combined point to a very recent Geological epoch for the formation of these beds and I have no hesitation in entirely agreeing with the opinion on this point formerly expressed by Colonel Tremenheere, that these coals are of the Tertiary period of Geology." After briefly pointing out the error made by the coal committee in their report for 1845, page 137, in referring this coal to the true carboniferous epoch, Dr. Oldham goes on to remark, "It is an interesting and curious fact, however, that in this district there is a very considerable developement of rocks which from their imbedded organic remains are certainly of an age somewhat synchronous with that of the great Carboniferous formation of Geologists but in which no beds of coal occur; whilst thick masses of vegetable matter have been deposited, and have subsequently been mineralized into good coal, at a comparatively very recent period. * * * * These coal bearing deposits, the total thickness of which no where exceeds 900 to 1,000 feet, are never traceable continuously over any very extended area. They are cut off and seem heaped up against the projecting ridges of the higher grounds and appear to be divided by these natural barriers into a series of isolated and detached portions. In all cases the physical conformation of the country now existing, or a conformation very slightly differing from that now existing, appears to have determined the extent of these deposits, and looking at the general nature of them and of their associations I am led to view them as a series of lacustrine (fresh water) deposits, formed in small lake like expansions along the lines of the great drainage valleys of the country wherein the waters became ponded back by natural barriers. These deposits also preserve a certain general direction and thus mark the line of a great depression or general valley between the main dividing ridge, which here separates Siam from the British territories, and the outer ridges which come between them and the sea"

The following are the localities in Tenasserim enumerated by

Dr. Oldham at which coal was reported to occur:—

ON THE GREAT TENASSERIM RIVER.

1.	Thoo-hte-khyoung	old coal field worked in 1843.
2.	Hien-lap	new.
3.	Kan-ma-pyeng	do.
4.	Ban-kyoop	known before.
5.	Ta-go-khyoung	do. do.
6.	Ban-pyai	new.
7.	Tsa-woot	do.
8.	Man-too	known before
9.	Above the falls	mentioned by Dr. Helfer.

ON THE LITTLE TENESSERIM RIVER.

10.	Tseng-koon	(Thian-khan of Dr. Helfer.)
11.	Tagit-khyoung	new.
12.	Nga-won-khyoung	do.

ON THE LE-GNYA RIVER.

13. Near the head waters known before.

At five of these localities, namely, *Ban-kyoop*, *Ta-go creek*, *Ban-pyai*, and *Mantoo* on the Great Tenasserim, and at *Ta-git creek* on the Little Tenasserim, "no coal exists, a black carbonaceous rock, with quartz nodules, which crumbles into powder on exposure and soils the fingers having been mistaken for coal"; of the remainder the most important are the five following, Thoo-hte-khyoung, Hien-lap and Kan-ma-pyeng on the Great Tenasserim, the Tseng-koon (Thian-khan of Dr. Helfer) on the Little Tenasserim, and the locality on the Le-gnya and to the consideration of these Dr. Oldham devotes considerable attention.

The following section is carefully recorded by Dr. Oldham from the old locality of Thoo-hte-khyoung:—

		Descending. Ft.	In.	Ft.	In.
1.	Surface gravel and clay			4	0
2.	Stiff tenacious grey clay with ferruginous markings and coatings on the fissures which, when cut, follow the tool and give to the mass a red and ochery aspect			6	0
3.	Brownish black earthy shale with fish scales and traces of vegetable remains			5	6
4.	Rotten coaly matter and coal smut			1	0
5.	*Coal* flaky and bright	2	6		
	Brown shale	0	1½		
	Coal	0	4		
	Greyish brown shale	0	1		

	Coal, pyrites abundant much more so than in the upper bed. This is good firm coal becoming more earthy and flaky towards the bottom....	2	0		
	Blackish grey flaky shale or soft clay, imperfect impressions of stems, occasionally thickens to...	0	2½		
	Coal, good solid coal. Pyrites on partings rendering it "brassy"	1	0		
	Blackish soft coal shale or earthy coal, shining and full of pyrites	0	1		
	Coal rich flakes of jet coal, ½ inch, separated by earthy shales, pyrites abundant	0	10		
	Black shaly smut, with thin streaks of coal in it...	0	2		
	Alternating and very irregular layers of flaky grey black vegetable mould or black jetty coal	0	9		
	Coaly shale, passing into Coal	0	8		
	Alternating clay and coal in thin streaky laminæ..	0	6		
	Grey flaky vegetable mould or clay	0	4		
	Black shale with coal streaks some of ½ inch thick.	0	10		
	Grey clay, flaky, same as before	0	5		
	Shale with thin bright streaks of coal, flaky and laminar	1	0	11	10
6.	Greyish white clay (under clay) flaky and slightly sandy; small and imperfect remains of plants visible....			3	6
7.	At bottom is more sandy and much harder, &c. &c.			0	6
8.	Grey soft flaky clay			0	3
9.	Blackish do. do.			0	2
10.	Brownish grey sandy clunch clay			1	3
11.	Clay, blueish grey, soft and flaky, and very similar to that met with before in part			3	0
12.	(Redder and more ochery). Sandstone reddish white, close grained and quartzose with ochery stains; clay hard, stiff, tenacious, towards base more ferruginous and sandy			5	0
13.	Sandstone ochery and quartzose, decomposing into a yellowish ochery sand			4	0
14.	Hard quartzose sandstone, &c. &c.....				
				46	0

The coal seam is seen by the above section to be made up of seventeen lesser seams of coal and shale, yielding an aggregate thickness of coal of six feet eight inches, and shale of five feet two inches.

Dr. Oldham describes it as "difficult to ignite, but burns freely breaking up into small fragments which do not intumesce or coke, and in large heaps requires care to keep up free ignition," adding "It was found to answer well in the small steam engine used at

the mines and also proved equal to ordinary country coal in sea going steamers."

Six miles north of the last locality occurs the Hienlap seam, which exhibits a thickness of close on 18 feet being, however, considered by Dr. Oldham as the same bed as the last. He remarks "There is a marked similarity in the beds of shale, holding fish remains, forming the roof of the coal in both places, and the general accordance of the group of associated rocks confirms the idea."

The following description of this coal by Dr. Oldham will shew that it is one of the most promising sites of the mineral in the province. "From top to bottom of this splendid bed there is but little variation in quality. All is of good glossy aspect and conchoidal fracture, coming out in large and symmetrical masses, which do not, however, bear exposure for any length of time without breaking down. It burns freely and with a good flame, does not coke, but breaks up and leaves but little ashes. Throughout the bed a few small lumps of iron pyrites and a few thin coatings on the joints occur but not to any extent and by no means so abundantly as in the coal at Tha-tay hkhyoung *(Thoo-hte-khyoung)* or at Kan-ma-pying nor do I think to any extent sufficient to prove objectionable in the use of the coal." According to Dr. F. W. Macnamara its specificgravity is 1·28 and composition as follows :—

Volatile matter including water ...	... 54·6
Carbon	... 45·4
Ashes	... 6·5
	106·5

The Kan-ma-pyeng coal is of somewhat similar character but abounds in pyrites, but Dr. Oldham thinks that for local purposes it would prove a useful fuel if the more "brassy" portions of the seam were rejected.

The next locality is "Tseng-koon" on the Little Tenasserim where Dr. Helfer described "immense coal fields of either slaty or conchoidal pitch coal, or English cannel coal, highly bituminous, without any concomitant of iron pyrites" The coal committee's report in 1846 went even further and spoke of "inexhaustible beds of uniformly good quality," (page 142) It must have been, therefore, with no ordinary feeling of disappointment and a keen sense of the ungrateful task he was engaged in, when after a careful examination of this egregious coal field, Dr. Oldham was forced to pen the following passage. "There are two distinct beds separated by an intervening series of sandstones and shales, of about 200 feet in

thickness. Of these beds the upper one is decidedly the best, and from its total thickness (six feet) I suppose that about two feet of tolerable coal could be obtained." The coal on the Le-gnya river is mainly interesting as associated with a thick group of beds of 600 feet presenting, Dr. Oldham thinks, "a more modern look than the beds with coal in the Tenasserim district." Of the coal itself Dr. Oldham remarks, "There are not altogether more than 18 inches of coal, and this can scarcely be called coal, for it is a hard black slaty shale, somewhat stone-coal-like in aspect. It is, however, very interesting from the abundant dissemination through it in irregular little nodular lumps of the resinous ambery like mineral I have noticed above."

Granite.

It only remains briefly to notice the Granite, in an economic sense by far the most important rock of any passed in review, constituting as it does the matrix of one of the richest and most widely spread developments of Tin ore in the world. Its extent as a stanniferous rock is unknown but the ore is largely developed in it (at intervals perhaps though this is doubtful) through the entire length of the British territory from 10° N. Lat. to 19° 25′ near which point the ore is worked by the "Red Kareng" who occupy that quarter, though whether the ore extends actually across the British limits is not quite certain, from the scanty knowledge we possess of this wild country. The ore, however, which is smelted in Kareng-nee, east of Toungngoo, is in every respect equal to that obtained south, whence an homogenity of this great stanniferous belt of granite may be inferred, calculated to encourage the most brilliant anticipations of future development of this particular branch of mining. Considering that these magnificent deposits of Tin ore have been so long known and worked, mention being made of them by Ralph Fitch in the middle of the 16th centuary, it is surprising they have not attracted greater attention from European capitalists. The mode of occurrence of the ore is thus described by Dr. Oldham.

"In the granite of the central dividing range which separates these provinces from Siam and more especially (so far as my opportunities for examination extended) towards the outer edge of this granite, or near its junction with the highly metamorphosed slates with which it comes into contact, tinstone is an essential ingredient in the mass of the rock, occurring disseminated through the granite in small crystals similarly arranged to the quartz and felspar of the rock, and in some cases, as at Kahan hill near Mergui, veins of granite cut through and traverse the more recent rocks and contain large and abundant crystals of tinstone.

The principal source of the ore is, however, in extensive deposits of "stream tin," where the degradation of the previously existing source has produced a detrital gravel, broken up and washed down from the slopes of the higher ground and accumulated in all the flats and stream courses.

So abundant and so widely disseminated are these deposits that it may safely be said that from the parallel of the town of Re southward to the boundary of the British territories on the Pakchan river or extending through more than 4° of Latitude, the places where from the physical configuration of the ground such deposits would be looked for and where they do not occur are the exception to the general rule."

After describing the "systematic and well devised plan of operations" pursued at the Rhenoung washings just south of British territory, Dr. Oldham remarks, "Within the British territory I did not see or hear of any place where the tinstone is not separated by the primitive mode of washing in a shallow wooden bowl or dish, by the hand With this process I satisfied myself by several trials that when the ore occurred in tolerably large crystals or fragments the smallest articles were frequently washed away and disregarded, to the loss in some cases of nearly 50 per cent. of the entire quantity, while in other localities where the ore was in a very fine and minute state of division the time and labour involved by the necessary slowness of the process, rendered it unremunerative." As regards the average yield Dr. Oldham justly observes that in a process so dependant on the skill of the workman no general estimate can safely be made, but that "among the native workmen no place is considered worth much trouble in working in which two men, one digging and one washing, cannot readily obtain a viss weight of the washed ore in one day,* although many places not so rich in ore as this are actually worked as occasion may offer. Some localities are traditionally stated to be so rich that six viss of ore can be procured daily by two men (as in some of the tributaries of the Le-gnya) but the great distance and difficulty of access to such places, and the constant necessity where no proper organisation exists, of continually returning for supplies prevent these being visited excepting rarely and at distant intervals."

The following section of the Rhenoung Tin working, though not in British territory is given by Dr. Oldham as illustrating the general character of these deposits.

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* A viss is 3 lbs. 10 oz. about 100 viss being exactly 360 lbs.

	Descending. Ft.	In.
Clay, surface soil, and stiff clay, from 2 inches to	2	0
Gravel, chiefly quartz pebbles much rounded, average size about 2 inches diameter, pebbles of granite, hard siliceous slates &c. but little sand. No tinstone	3	6
Gravel, upper layers fine, passing down into a gravel of about the same coarseness as that above, and very similar in composition. Tinstone abundant, more especially towards centre of deposit	6	6
Clayey gravel below. The gravel occasionally rests directly on a hard siliceous rock.		

At Maleewon the stanniferous gravel is 7 ft. 6 in. of which the lower 2 ft. 6 in. is poor in ore. In the upper part of the Le-gnya river, the bed is 4 feet thick.

"In the Tenasserim district the tinstone layer varies from 4 feet 6 inches to 7 feet in thickness. In the Henzai basin the tinstone is in places covered with a thick deposit of gravelly clay sometimes five to ten feet thick whilst in other places its surface comes up to the thin covering of soil. In the small stream which passes the village of Con-beng-kweng, the bed of the channel and its banks, with the exception of the clayey soil above, all yield tinstone." After describing the ore raised from these deposits as fully equal to the Cornish ores Dr. Oldham remarks, "With the tinstone in a few localities Wolfram, as I have already pointed out in former papers, is to a small extent intermixed, but in the majority of places I have mentioned no injurious ingredient which cannot readily be got rid of occurs."

Hot springs.

Hot springs occur somewhat numerously in Burma especially towards the south, but our information is not sufficient to compile a complete list. In Arakan there are few known, but one was discovered a few years ago at the head of the Sandoway river by Mr. Banbury of the police, when in pursuit of some escaped convicts, but of this and of others which probably occur in the less accessible parts of the district no detailed information exists.

In Pegu the only known hot spring rises in the bed of Pade stream near its mouth some three miles S. E. by S. from the "lime hill" below Thayet-myo, or four and half miles N. by E. from Pyalo. The spring rises through the sand of the river bed, beneath which it is ofter entirely masked, and its temperature has not been ascertained

In the district of Shwe-gyeng hot springs are numerous, but little detailed information respecting them is on record. One occurs on

Bheeloo-gywon in the Amherst district at Ka-hgnyaw, one on the Salween near the junction of the Gyo and a group of ten springs or more near old Attaran town, thus described by Dr. Helfer.

"There are ten hot springs, or rather hot water ponds, of which I could only examine the nearest as the access to the others was through the deep water at 130° Fahr. This one was a semicircular pond, about fifty feet in circumference. In one place it was thirty four feet deep. The quantity of carbonic acid which the springs evolve seems to render the neighbourhood peculiarly adapted to support vegetable life. The ground around the spring is strongly impregnated with iron and the water which runs over the ochre mud has a strong styptic taste."

Near Metta, the Kareng Christian village on the upper course of the Tenasserim, hot springs occur, which are described as slightly chalibeate and sulphurous with a temperature of 190° Fahr. The thermal saline springs which rise in the Tenasserim valley are thus alluded to by Dr. Mason. "I have visited four or five in a line of fifty or sixty miles, and found them uniformly of a saline character; around one nearly east of Tavoy the stones are covered with an efflorescese resembling Epsom or Glauber salt. Mr. Bennett found the thermometer in this spring to rise to 144°. Major McLeod visited one of the series at Palouk and writes, 'There are two spots where the springs shew themselves. One immediately on the right bank of the river, and another two or three minutes walk to the north-east inland. There must be thirty or forty bubbling up along a line of about fifty feet by twenty. The hottest was 196°, another 194°.'"

"The hottest springs are at Pai, ten or fifteen miles north of those visited by Major McLeod, and according to Phillips they are hotter than any on record out of volcanic regions, with the questionable exception of three springs in China. The principal spring at Pai, for there are several, is in a little sandy basin in the midst of granite rocks on the margin of a cold water stream, where it bubbles up from three or four vents, and on immersing the thermometer into one the mercury rises to 198°, within fourteen degrees of boiling water. Its position is rather peculiar, not being in a valley like the others I have seen, but on the side of a hill more than a thousand feet above the level of the sea."

An interesting and more detailed account of these springs by the late Lt. Col. J. F. J. Stevenson, is contained in the journal of the Asiatic Society for 1864, page 303, with the following analysis by Mr. Tween of the water and deposit forwarded from the spot.

by Colonel Stevenson. "The substances present" (in the water) "are *Iron*, *Alumina*, *Lime*, *Potash*, *Soda*, *Silica*, *Hydrochloric Acid*, *Hydrosulphuric Acid*, *Sulphuric Acid* and organic matter which is *nitrogenous*." The siliceous deposit contains in addition to Silica; Iron, Alumina, Lime, Potash, Soda, a trace of Magnesia, Carbonic Acid, Sulphuric Acid, Hydrochloric Acid and organic matter."

Mr. O'Riley in 1855 discovered some hot springs in the Toung-ngoo district, in the hills to the east of the Tsittoung river on the banks of the small Myet-nan stream. This officer reported that "They extend for a quarter of a mile along the margin of the "stream. Those accessible from the halting place bubble up "from beneath the large granite boulders through a sand of "quartz crystals deposited by the disintegration of the granite, "the water having a temperature of 129°, possessing no smell and "leaving no deposit similar to those of a calcareous nature, nor "does the taste exhibit any chalybeate property. The accompa-"nying rocks in fragments near the granite, are blue and white "quartz and water-worn pebbles of greenstone. No limestone "could be discovered, and neither in the vicinity of the springs "nor in the ranges of hills crossed in yesterday's march was any "sign of past volcanic action visible."*

A geological sketch of Burma would hardly be complete without a reference to the curious phenomenon of the Spirit Fire at a spot nine and a half miles north by west from Kama, an interesting account of which by Lieutenant (now Lt. Col.) A. Duff is contained in the journal of the Asiatic Society for 1861; page 309.

The following extract from the above account will give a good idea of what has served as a basis for a curious local legend. "Here we had to dismount and walking on for about a hundred "yards we came to a little hillock up which we were led. On the "top of this hillock is a large heap of stones and going round to the "opposite side of it, from that we had approached by, we saw the "Spirit Fire. Out of the stones in two or three places comes a "bright flame, flickering and burning; at a little distance from the "heap of stones where there are some cracks in the ground, more "flame," and further on, "The ground and the stones were not "even hot except in the places where the fire was actually burning; "the soil was gravelly and at one place where the flame was issuing "from a crack I stirred up the gravel with a stick. The effect pro-

* Journal of a tour east from Toung-ngoo. Selections from the Records of the Government of India (Foreign Department) No. XX. 1856, page 51.

"duced I can only compare to that produced by stirring up a plum "pudding in which brandy is burning." The author concludes with the opinion that the phenomenon is the result of "some inflam-"mable gas issuing from the earth," a perfectly correct view though diffidently advanced, and the only correction called for in the above description is that the flame would hardly bear being called "bright" as being the flame of pure Hydrogen it is in *bright day-light* very faint. This spot is in fact merely one of many where a copious evolution of Hydrogen takes place. At Taw-gyee near the frontier 29 miles W. by N. from Thayet-myo some brine pools occur, which are kept in a state of active ebullition by the escape of this gas; and the same occurs at Nwa-ma-yan and various other spots, the gas being readily ignited by a lighted stick or match as it issues to the surface. Here the escape takes place in a dry tract of jungle, and the jungle fires which sweep the ground in the hot weather doubtless from time to time develope the phenomenon, when extinguished either by the wind, or temporary deficiency in the supply of gas.

Economic Mineralogy.

Petroleum.

Two different sorts of petroleum occur in Burma. The dark commercial oil from the wells at Re-nan-khyoung in upper Burma and the clear limpid oil of Arakan. Within Pegu a few spots have been of late years discovered near the frontier, whence a little oil has been extracted of the same description as the commercial oil of Re-nan-khyoung, but no extensive workings have as yet been attempted. The limpid Arakan oils resemble sherry in tint and fluidity, varying from pale to dark, and usually displaying a peculiar opaline hue. The wells whence this oil are derived is usually merely surface excavations, rarely carried to any depth, and scattered throughout the Kyouk-hpyoo district. It is probable that both varieties of oil are derived originally from the Nummulitic group of rocks through the subterranean distillation of their carbonaceous beds at great depths. Very lately indications of the existence of petroleum have been found on the Borongo Islands near Akyab and excavations have been commenced. Towards the end of last February oil was said to have been found but no accurate information is yet obtainable.

Tin.

The most important mineral found in the province is tinstone, which occurs in the granite, running from north to south through the whole length of the Tenasserim division, and in which the ore is probably obtainable throughout, but possibly only at intervals. The richest locality in the province appears to be in the extreme south in the Maleewon sub-division. For many years this tract was leased to a Chinaman who worked stream tin only. Some years ago an English firm received a grant and commenced mining but the venture has not succeeded and the works have been abandoned. There is another rich deposit nearly opposite Tavoy on the eastern side of the mountains. "That large quantities of tin must have been "found in Tavoy three hundred years ago we have evidence in an "incidental remark of Mr. Ralph Fitch who travelled in this part "of the world in 1586 or 1587. He says 'I went from Pegu to "'Malacca, passing many of the seaports of Pegu, as Martaban, "'the island of Tavi, whence all India is supplied with tin, Tenas-"'serim, the island of Junk Selon and many others.' An extensive and careful examination of deposit at Kahan on Mergui island was made by Captain (now General) Tremenheere "Kahan itself" he wrote is on the highest portion of a low ridge of hills not more "than 200 feet above the level of the Tenasserim river: it is com-"posed of a soft friable white sandstone rock, the upper portions "of which are decomposed and irregular. The surface gravel "does not contain tin. It is found in the crystallized form inter-"spersed in decomposed granite, forming a vein about three feet "wide which is enclosed in the white sandstone rock and dips "down at a high angle with the horizon.

"Large scales of chlorite occur with it which, as they are "generally found where the tin is most abundant, is called by the "natives the 'mother of tin.' The face of the hill is in one spot "scattered over with these which appear to have been brought "down from the vein with other matter from which the tin has "been separated by the usual mode of washing. The granite is "completely decomposed and the crystals would easily be separa-"ted by washing. No tin has been raised here since the country "came into our possession but the locality is known. It was "worked during the Burmese time and valued as supplying the "richest ore of tin..... .....The crystallized form in which the ore "is found" in the province generally "renders its separation ex-"tremely easy and the whole processes of stamping and dressing "can be dispensed with. No arsenic or sulphur being mixed "with the ore it. need not be roasted before it is placed in the

" furnace .....This ore contains specimens of macled crystals " which in weight and size surpass anything I have ever seen in " Cornwall or in cabinet specimens.

In another report Captain Tremenheere wrote " with the view " of ascertaining its value in the home market I transmitted " a box of average samples of the ore to a smelting establishment " in Cornwall (Messrs Bolitho & Co.) having extensive connection " with the tin mines of that country. Mr. Thomas Bolitho inform- " ed me that the samples of once washed ore produced about 70 " per cent. of tin and the twice washed yielded nearly 75 per cent. " The metal was very good being almost free from alloy, and the " ore appeared to separate from the matrix very easily."

As already stated, tin is found in the granite mountains east of Toung-ngoo. Mr. Theobald is in doubt as to whether it extends beyond British territory though he speaks of its being worked near 19° 25′ N. by Kareng-nee. Dr. Mason, who was well acquainted with the locality, and evidently alluding to the same spot, says that it is " beyond the watershed in the valley of the Salween" that is beyond the British teritory: he adds " A large Kareng village near " the principal locality is constantly employed, during the rains, " in washing the detritus of the granite in which the mineral is " found and in smelting the ore which is sold to the Shan in small " pigs of a viss* each which circulate in the neighbourhood instead " of Rupees."

Coal.

Coal, lignite and Tremenheerite (described by Dana as " an impure variety of graphite, or between coal and graphite") occur in the southern portion of Mergui and near Thayet-myo in the Pegu division.

An account of the Mergui coal has already been given and a slight allusion has been made to the Thayetmyo coal in treating of the economic products of the Nummulitic group. The existence of coal near Thayetmyo was first discovered in 1855 by Captain S D. White the Assistant Commissioner, and the site was visited and reported on by Dr. Oldham. "In structure the coal is " flaky and laminar, composed of alternating layers of bright " jetty coal and dull earthy carbonaceous shale. In specific gra- " vity it varies from 1·2 to 1·35. It lights with some facility, " burns with good bright and abundant flame, does not intumesce " or coke to any extent, the fragments to a great extent retain- " ing their form and burning into hard red cinders, does not " clinker, and leaves only a small proportion of ash in *powder*.

* 3 lbs. 10 oz, about.

"By a comparative trial of this coal with Raneegunge coal and "English, it was found fully equal, if not superior, to the ordi-"nary Raneegunge coal as to its rate of burning or endurance, "and decidedly superior in the relative amount of ashes and "cinder left after combustion. In this Thayet-myo coal 35·00 "per cent of ash and cinder remained, in the Raneegunge coal "46·60 per cent." Notwithstanding its excellent quality and the advantages of its position Dr. Oldham felt constrained to recommend the abandonment of the works as he came to the conclusion, after a careful examination, that the deposit was nothing more than a local accumulation of small area. Its economic value, therefore, is trifling and much the same objections and defects will probably be found to apply to other outcrops found in Pegu. One of these occurs near the village of Khyouk-koo-la, three miles south of the Tham-bya-daing boundary pillar. "This coal was "first discovered in a cart track through the jungle, where the "black colour of the pulverized rock attracted attention. It is, "however, better seen in a stream not far off, where it dips at "70° to E. by N. It is, in fact, however, a bed of carbonaceous "shale containing a one foot seam of hard bright coal and a few "stringy seams which may make in all a thickness of coal of "eighteen inches.

"In addition to actual seams of coal some of the sandstones "contain carbonized trunks of trees from which specimens of lig-"nite might be procured. Such would seem to be the origin of "the coal said to occur near Dalhousie in the Bassein district."

Iron.

Iron ore is found in several portions of the province, but mainly in the Tenasserim division. It occurs as oxide of iron both specular and brown, the former on one of the branches of the Palouk river, and the latter, brown hœmatite according to Dr Ure, on an island 10 miles S. W. of Mergui. Of three specimens of the latter, Dr. Ure wrote. "The three samples of iron ores from Mergui are brown "hœmatites and, from their density, will afford good iron in the "smelting furnace.

"Mergui iron stone No. 1 sp. gr. 3·37
" " " " 2 " " 3·18
" " " " 3 " " 3 32"*

About three miles north-west of Tavoy is a hill from which specimens were sent to Dr. Ure by Mr. Blundell when Commissioner of Tenasserim. Dr. Ure reported as follows :—

* Journal of the Bengal Asiatic Society. Vol. XII, (1843), page 239.

" 1st—Compact magnetic iron ore. Tavoy No. 1.
" Colour, iron black with a metallic glimmer, fracture fine
" grained; possesses magnetic polarity: specific gravity
" 3·511, compared to water=1,000.
" It yields on analysis the following constituents:—

" Peroxide of iron	86·5	equivalent to 60·55 of metal,
" Silica with a trace " of phosphate of " lime	3·5	
" Water	10·0	
	100·0	

" It contains no manganese or titanium.

" 2nd—Compact magnetic iron ore. Tavoy No. 4. External
" and magnetic characters as above.
" Specific gravity 3·462.
" It yields on analysis:

" Peroxide of iron	86·0	60·2 of metal.
" Silica with trace of posphate of " lime	0·9	
" Water	13·1	
	100·0	

" It contains neither manganese nor titanium.

" 3rd—Tavoy ore. No. 2. External characters as above.
" Specific gravity 4·369.

" 4th.—Tavoy ore No. 3. Characters as above, as to aspect and
" magnetism.
" Specific gravity 4·100.

" The two latter samples are even richer than the former,
" as is evinced by the specific gravity, but they are all quite rich
" enough and pure enough for making the best quality of bar iron
" and steel.

" I instituted two elaborate sets of experiments in search of
" titanium, but I found none in the above ores."

That this valuable ore was once worked is proved by the fact that on the sites of many of the deposits are found huge masses of 'scoria' and in the cinders "still remain 12 to 15
" per cent of metal."

Gold.

Though of slight economic importance, gold occurs in most parts of Burma. " It is found in the lead
" near the northern frontier of Tenasserim, it
" is washed from the sands of the Tenasserim river in the south,
" and the streams that tumble from the high granite mountains

" between Yay *(Re)* and Monmagon *(Moung-ma-gan)* are con-
" stantly rolling down their golden sands into the valleys around.
" It has been collected in small quantities in the tin deposits east
" of Tavoy." The Shwe-gyeng river, a tributary of the Tsittoung, is so named from this metal being found in the sand of its bed. *(Shwe-gyeng or Gold washing).* Of the gold found here and submitted by the late Major Berdmore, Dr. Oldham wrote, " the
" specimens of gold forwarded consist of varieties ranging from
" dust, of the finest kind that could be mechanically separated,
" to small nuggets These very well illustrate the mode of oc-
" currence of the gold in its native state imbedded in quartz,
" while the other specimens shew that the general form in which
" it is found, in these washings, is in small rounded flakes, or
" flattened plates of various sizes." In Pegu also, gold is found in several spots, but there as in Tenasserim it is very little worked as the amount collected is not sufficient to renumerate the washers.

Copper.

Several specimens of copper ore are said to have been brought from some of the islands of the Mergui Archipelago. Mr. O'Riley also procured four specimens from the hills between the Salween and the Tsittoung, all consisting of " the ordinary pyrites, both arsenical and combin-
" ed with sulphur and iron." "An extremely interesting specimen
" of copper ore of a somewhat novel composition was procured
" by Mr. O'Riley from some spot on the Yoonzalin (Rwonzaleng)
" river, said to be accessible for boats. Mr. Waldie, who analy-
" zed it, describes it in the proceedings of the Asiatic Society of
" Bengal " for 1870, page 279 as a new mineral species under
" the name of O'Rileyite. Two analyses were made as below;
" the first being that of a sample forwarded on the 24th July,
" the second, which differs slightly, forwarded subsequently."

	1	2	
Copper	17·000	12·130	
Silver	0·096	0·000	
Iron	36·470	42·120	
Antimony	1·150	0·540	
Arsenic	32·700	38·440	
Sulphur	1·360	0·000	
Oxide of Copper	0·000	1·210	Soluble in dilute hydrochloric acid
,, Lead	0·000	1·890	
Arsenious acid	0·000	1·120	
Protoxide of iron	0·000	1·970	
Earthy matter	0·560	0·120	
Loss	10 664	0·450	
	100·000	10·000	

" Indications of the presence of copper, in the shape of stains of

" the green carbonate, are also occasionally met with; one such " being recorded in the Geological notes of Captain W. Foley, in " the *Botoung* hills, 90 miles N. N. E. from Maulmain."*

Galena.

" This ore is known to exist in numerous spots in the Tenas- " serim division and is usually argentiferous " to an extent, on an average of 12 ounces " of silver per ton of lead."

Table exhibiting the amount of silver in ounces per ton of lead, from samples of Galena from various parts of Burma :

		Oz.	dwt.	gr.
1.	Martaban	5	8	0
2.	Do	6	14	0
3.	Do	9	0	0
4.	Tavoy	16	7	19
5.	Maulmain	19	5	14
6.	Toung-ngoo	20	8	7

" Nine localities where galena occurs are marked in the sketch " map of Martaban *(now called Shwe-gyeng)* by Mr. O'Riley, rang- " ed generally on a N. N. W. line of bearing, coinciding with the " general direction of the hill ranges and extending over a line of " country some 90 miles in length. Mr. O'Riley describes the " ore as occurring in the mountain limestone formation of the " district, which is that also to which the magnificent and pic- " turesque limestone hills near Maulmain and along the Salween " belong, but he does not say if the ore occurs disseminated in " the rock, or in the form of a true mineral vein or lode. From " what I have remarked on the north-east of Toung-ngoo..... I " am inclined to think that it may occur in both ways, as it is " there rather doubtful if there is a line vein, whilst in the Sal- " ween valley, the accounts would certainly suggest the existence " of lodes."†

Manganese.

Of Manganese, Captain (now General) Tremenheere, wrote: " During my stay at the Tenasserim coal " basin a piece of manganese ore (black " wad) of good quality was brought to me by a Kareng who sta- " ted that it had been found accidentally in the bank of a stream " called the Thuggoo *(Tha-goo)* which enters the Great Tenas- " serim seventeen miles below the coal site." Several other pieces of the same ore were brought from other spots, and these Captain Tremenheere visited, finding at each " that a valuable " bed of manganese ore existed close to the surface of the country. " It had been apparently cut through by the action of the stream,

* Records of the Geological Survey of India, Vol. vi, page 94, 1873.

† Theobald. Metalliferous resources of British Burma. Records of the Geological Survey of India. Vol. 4, page 93.

" leaving a section of the bed of the ore in their banks, covered " only by the debris of the banks themselves.....of the extent " of these manganese beds it is difficult to pronounce. The face " of the country in which they are situated is flat, thickly over- " spread with soil, and with the densest jungle. It is not, so far " as I could perceive, intersected by many streams which would " afford the means of tracing the mineral deposit. The Great " Tenasserim river has passed through the manganese bed in one " spot, two and a half miles from two other points at which it " occurs to the north and south, at both of which it is likewise " discovered near the surface by the action of streams. The " probability, therefore, is that it is a horizontal deposit cover- " ing many square miles."

Antimony.

Antimony occurs associated with galena in Tenasserim and " is reported as being often met with on " the mountains that bound the valley of the " Thoung-gyeng. Mr. O'Riley found it at the sources of the At- " taran and large quantities of the ore have been dug up near " Maulmain." Of the specimens of the last, Mr. Piddington, to whom they were sent, reported that they contained antimony, iron, arsenic, and sulphur with bismuth, and in one instance a trace of molybdena.

Building stone.

Good building stone is obtainable from Kaw-ran-gyee island off the coast of Arakan and from the adjoining mainland, whilst the stone for the Alguada reef light-house were obtained from Kalegouk.

Clays.

The clay in use for pottery and brick-making is the ordinary alluvial clay of the province, which receives no preparation beyond mixing with water and sand before it is moulded. A dark coloured seam in the alluvium of the Irrawaddy valley is much sought for by potters for their vessels but the seam is a thin one and the clay, save in its darker colour, seems identical with the commoner sort. Some of the upper beds of the Nummulitic group consist mainly of china clay and would answer well for the manufacture of chinaware, being almost free from iron. In the neighbourhood of Bassein and of Bheeleng on the Tsittoung excellent clay is found and worked into highly ornamental vessels, whilst Gnyoung-beng-tshiep near Maulmain and Twante and Kwon-khyan-goon in Rangoon are noted for their jars and pots. Porcelain earth is found in several parts of Tenasserim but generally much tinged with red oxide of iron. On the banks of the Tenasserim, four days journey above the town of the same name, there is a very considerable layer, partly

together with quartz and mica crystals. Lower down another layer is observed with a mixture of very much felspar and further north there are crags at the bases of some of the granite mountains where the felspar has decomposed so much that the paths are thick with a coarse quartzose sand and a few grains of mica that remain.

Limestone.

The peculiar limestone ridges of Tenasserim diminish towards the south by degrees without, however, actually disappearing and there is a famous limestone cave as far south as the Tenasserim, whilst there are many in the Amherst district, all in the fantastic outcrops of limestone which rise abruptly from the plains. In the neighbourhood of Tavoy is some perfectly pure carbonate of lime. Of limestone in Pegu Mr. Theobald writes* "No limestone whatever occurs on the east side of the "Irrawaddy river if we except a few scattered and most insignificant patches of travertin found here and there among the "hills of the Pegu range, and a single outcrop of limestone near "the banks of the north Naweng, all of which, in an economic "sense, are of little or no value. West of the Irrawaddy, however, limestone is abundant, being found at intervals along the "entire length of the Arakan range .....Northern Pegu is "abundantly supplied with lime from the lime hill below Thayet-myo, lime kilns being constructed in the neighbourhood of "Htoon-byo village on the river bank, at the hill itself, and lower down again, near the village of Pien-tha-leng; limestone is "also found not far from the river behind Akouk-toung and is "procurable in any quantity. All this limestone is of Nummulitic age and of excellent quality.....In the Bassein district "most of the lime at present used is procured near Tha-man-dewa and Kyouk-thien-bhaw on the Bassein river, a few miles "below Nga-poo-taw, regarding which I shall quote the remarks "of Mr. W. Blanford who examined the locality 'it is by far "'the most important locality perhaps in the whole of Pegu. At "'Kyouk-thien-bhaw several very large masses of limestone crop "'out from the alluvium on the river bank. The quantity here, "'though considerable, would, however, soon be exhausted if "'there were a large demand for lime. South of the village of "'Tha-man-de-wa a tidal creek stretches for some miles into the "'country and on the south of the creek the outcrop of a bed at "'least 30 or 40 feet thick stretches across the country in a direction nearly S. 20° W. for a distance of about a mile further,

* Memoirs of the Geological Survey of India. Vol. X, pt. 2, page 343.

" 'the most southerly point where it is seen being near the bank
" 'of the river bed not far from the village of Toung-gale. The
" 'quantity is inexhaustible, the quality good and the access easy,
" 'the Tha-man-de-wa creek being navigable by Burmese boats of
" 'the largest size and, probably, at high tide for sea going
" 'vessels.' Along the western side of the range limestone occurs
" at several places, but so situated that it is of no economic value.
" I must, however, notice one spot on the coast near Bhaw-
" mee which I think may not improbably prove of value.. .....
" The limestone hitherto found in the Kyouk-hpyoo district
" would appear to have become almost exhausted.

" None of the limestone found in Pegu can be recommended
" for ornamental purposes, especially as superior marbles exist in
" in the adjoining countries, as for example, the well known white
" marble from the hills near Ava, the dark marbles which might
" be procured from the limestone hills in Tenasserim and a very
" neat grey marble, resembling the China marble used for floor-
" ing in Calcutta, procurable in the hills north-east of Toung-
" ngoo where the rock is burned for lime."

CHAPTER III.

FOREST AND OTHER VEGETATION.

The various forests were formerly, and by some still are, classed as :—1. Mangrove ; 2. Lower Mixed ; 3. Dry or Upper Mixed ; 4. Eng or *Dipterocarpus* ; and 5. Evergreen. Mr. S. Kurz was specially deputed to examine the forests of Pegu and has submited an elaborate report (from which the larger part of this chapter is extracted) and I have followed the classification adopted by him. It is as follows :—

I.—ORIGINAL VEGETATION.

A.—FORESTS.

AA.—EVERGREEN FORESTS.

1. LITTORAL FORESTS.
   - *a* Mangrove.
   - *b* Tidal.
2. SWAMP FORESTS.
3. TROPICAL FORESTS.
   - *a* Closed.
   - *b* Open or moist.
4. EVERGREEN HILL OR TEMPERATE FORESTS.
   - *a* Dry hill. (3,000—7,000 feet.)
   - *b* Pine. (3,000—7,000 feet.)
   - *c* Damp hill. (3,000—6,000 feet.)

BB.—DECIDUOUS FORESTS.

5. OPEN (*chiefly on Diluvial formations.*)
   - *a* Hill Eng.
   - *b* Eng or laterite.
   - *c* Low.
6. MIXED.
   - *a* Alluvial.
     - *aa* Lower.
     - *bb* Savannah.
     - *cc* Beach.
   - *b* Upper or teak.
     - *aa* Moist.
     - *bb* Dry.
7. DRY.
   - *a* Mixed.
   - *b* Sha (*Cutch.*)
   - *c* Hill.

B.—SAVANNAHS AND LOW NATURAL VEGETATION.

AA.—LAND VEGETATION.

8. BAMBOO FORESTS.
9. SAVANNAHS.

10. NATURAL PASTURES.
    a Long grassed
    b Short grassed.
    c Hill.
11. RIPARIAN VEGETATION.
    a Of rivers with sandy or clayey beds.
    b Of rivers with rocky beds.

BB.—VEGETATION OF SWAMPS AND WATER.

12. FRESH WATER VEGETATION.
    a Of Swamps.
    b Of lakes and other stagnant waters.
    c Of running waters.
13. SALT WATER VEGETATION.
    a Of tidal swamps, etc.
    b Of the sea.

II.—VEGETATION OF CULTIVATED OR LATELY CULTIVATED LAND.

1 OF AGARIAN LAND.
    a Lower (as rice fields).
    b Upper (as *Toungya*).
2. VILLAGE VEGETATION.
    a Native gardens, waste places.
    b Village vegetation itself.
3. NATURALIZED PLANTS.

AA.—EVERGREEN FORESTS.

Littoral forests.

The littoral forests stretch all along the coast wherever flat shores and alluvial deposits prevail. They do not, however, cover the whole extent of the country but are restricted to the alluvial formation and more especially to the immediate vicinity of the tidal rivers and channels. They are often enough interrupted by other kinds of forests which either grow upon the higer ground or diluvial formations, and are not uniformly composed of trees of the same species.

a. The Mangrove forests occupy the flat muddy shores along the sea, and especially along the estuaries of rivers and streams, forming the outer skirt of vegetation, often extending, during flood tide, far into the sea.

They form rather dense, and usually low, forests of from 40 to 70 feet in height with glossy dark green foliage. The most characteristic trees and shrubs are *Bruguiera gymnorhiza* and sometines *B. Oxyphylla, Rhizophora conjugata* and *Rh. Mucronata, Sonneratia apetala, S. acida, S. Griffithii, Acanthus ilicifolius* and others.

"Where *Bruguiera* and *Rhizophora* prevail the soil is wash-
"ed out from the roots by the sea in all directions so as to form of-
"ten a complete labyrinth of network presenting an ugly and dirty
"aspect. Numerous irregular short stems of undeveloped trees,
"looking like pinnacles or irregular knobs* rising from the ex-

* Called in Burmese "stumps of hell."

" posed roots, accompanied by numerous mangroves in all stages " of growth from the stick-like seedling up to the full grown tree, " make walking amongst them very troublesome."

b. The tidal forests in many respects resemble those just described, especially along the borders of tidal channels, but they are generally devoid or nearly so of true mangroves. They not only occupy the sea shore but also the banks of tidal rivers far inland. They are even found where the influence of the tide is but slight and the water but slightly brackish. Their average height is from 40 to 50 feet or in some cases more, whilst in others they are reduced to shrubs. They have plenty of shrubbery undergrowth. During spring tides they are more or less inundated but ordinary tides seldom reach them. The most characteristic trees are *Sonneratia apetala* and *Avicennia tomentosa*, which form nearly one third of their entire bulk. According as one or the other of these two trees prevails these forests assume a willow-like appearance with drooping branches and lax linear foliage of a light greyish-green colour, or low forest presents itself of a mean height hardly exceeding 25 to 40 feet with a broad, dull green foliage collected into dense almost spherical crowns.

The other trees and shrubs are, for the great part, similar to those in the mangrove forests. They are especially: *Sonneratia acida* and *S. Griffithii*, *Ægiceras corniculata*, *Kandelia Rheedii*, *Hibiscus tiliaceus*, *Heritiera littoralis* and *H. minor*, *Pongamia glabra*, *Pandanus fœtidus* and sometimes *Salix tetrasperma*.

Nipa fruticans and *Pandanus fœtidus* form often dense bushes in certain localities while *Phœnix paludosa* is very frequent, generally forming dense, almost impenetrable, patches which look very attractive on account of the numerous bunches of red fruit that contrast beautifully with the glossy dark or yellowish green foliage.

Swamp forests.*

The Swamp forests are frequent in the deep alluvium of the Irrawaddy valley, especially between this river and the Hlaing where they attain their greatest development. They are found also along the Tsittoung especially round the small lakes and swamps, where they are often blended with the surrounding forests, and are not unrepresented along the streams of Tenasserim especially towards the south.

i.—The true swamp forests are restricted to deep alluvia where

* It is doubtful if these swamp forests should be included amongst the "Evergreen." On this point Mr. Kurz observes "whether the swamp forests are properly classed by me amongst evergreen forests is still an open question, for Captain Seaton informed me that the most wonderful feature of these forests is that they shed their leaves completely in the rainy season."

they appear especially along courses of streamlets and in depressions covered by water up to four or five feet or a little more during the rainy season. As in evergreen tropical forests four strata of vegetation can easily be distinguished, *viz.*, the lofty trees, the smaller trees, the shrubs and the soil clothing. The lofty trees, about 60 to 70 feet high, are chiefly a variety of *Anogeissus acuminatus*, *Mangifera longipes* and *Xanthophyllun glaucum;* the smaller are *Memecylon Helferi*, *Pavetta parviflora* and *P. nigricans*, *Cassia fistula* and many others. Climbers are plentiful and some of them very curious, having short stems only a few feet high and sending out long flexuose and crooked branches forming a complete entanglement through which it is almost impossible to penetrate; the most common are a species of *Jasminum*, *Gmelina Asiatica*, *Pachygone odorifera*, *Derris scandens*, *D. elegans*, *D. uliginosa*, etc. The herbage is poor and scattered, consisting chiefly of *Carex Wallichiana*, which is never touched by cattle, *Maranta*, *Polygonum*, *Lasia aculeata*, etc.

Orchids are very common, covering in masses the branches and stems of trees, especially around lakes. They are usually accompanied by such ferns as *Asplenium nidus*, *Polypodium quercifolium*, *Drymoglossum piloselloides*, with an abundance of *Macromitium* and other mosses and *Hepaticæ*.

ii.—Riparian swamp forests are not strictly forests; they are patches of certain swamp forest trees which occur usually around lakes and swamps in the midst of other forests, or along the muddy borders of streams in alluvial soil. Only a few species of true swamp forest trees appear but these in such a large number of individuals as to cause a peculiar darkness and shade which expels a great number of light-loving plants of the surrounding (usually mixed) forests. They are marked also by numerous pendulous mosses (*Meteorium* chiefly). The principal tree is *Xanthophyllum glaucum*, often accompanied by *Barringtonia acutangula; Mangifera longipes* and *Anogeissus acuminatus* are usually not far off.

In such swampy places some of the water-loving palms are sometimes met with in large numbers, especially *Areca* of which *Maranta dichotoma* may be considered a regular companion. Orchids and other epiphytes are here as plentiful as in the true swamp forests.

Tropical Forests.

The tropical forests owe their origin to a damp, equable climate and were no doubt of much greater extent at a former period; as the destruction went on the climate became drier and drier and they became restricted to the more protected valleys.

a. The average height of the trees in closed tropical forests ranges from 150 to 200 feet, rarely less; trees 250 feet in height are of no rare occurrence. The clean stem of the taller trees varies from 80 feet to 100 and more. Fires rarely occur and the fallen leaves thus decay slowly and form a rich, black humus soil.

These forests are clothed with an unbroken stratum of vegetation of 150 to 200 feet in depth and there are often four or five strata of vegetation distinguishable. The lofty trees tower above all others forming, as it were, a leaf-shedding open forest above the lower stratum of evergreen trees. These are chiefly *Sterculiæ* with *Tetrameles nudiflora, Albizzia Lebbek* and *A. stipulata, Xylia dolabriformis, Pterocarpus Indicus, Artocarpus claplasha, Pentace Burmanica* and others. Of lofty trees the following are the more conspicuous true evergreens; *Dipterocarpus alatus, D. lævis, D. turbinatus* Hopea odorata, Ficus laccifera, Anisoptera glabra, Payena paralleloneura, Garcinia cowa, Antiaris toxicaria.*

The medial stratum is formed by large trees on shorter trunks, chiefly evergreens, as *Mitrephora vandœflora, Pterospermum semi-sagittatum, Pt. fuscum, Cedrela Toona, C. multijuga, Mangifera Indica,* and others.

A third stratum is formed of smaller trees all, or nearly all, evergreens and seldom higher than 30 to 50 feet. They are numerous in species and some of the more frequently occurring and characteristic are *Alsodeia longiracemosa, Tetranthera Roxburghii, T. macrophylla, Cupania glabrata, Cyathocalyx Martabanica, Schizocheton grandiflorum, Vitex heterophylla* and many others. Bamboos are very frequent, growing to a height of from 80 to 100 feet. Of palms and screwpines a splendid *Livistona, Arenga saccharifera,* one or two species of *Areca, Caryota urens, Wallichia oblongifolia* and *Calamus arborescens* along the streams are the most common. *Pandanus furcatus* also is not infrequent especially in the hilly parts of Tenasserim.

Another stratum consists of shrubs; many shoot up with a single stem like a treelet whilst others are climbers or creepers. Amongst these are *Ventilago calyculata, Hibiscus scandens, Zizyphus glabra, Naravelia smilacifolia, Jasminum reticulatum, laurifolium, anastomosans* and a few other species, *Modecca trilobata, Smilax ovalifolia, Bauhinia ornata, B. anguina* and others, including three or four species of *Calamus.*

* These wood-oil trees are, strictly, not evergreens, but the succession of leaf-shedding and leaf-forming is here so rapid that young leaves are already developed while the old ones are dropping off.

The principal erect shrubs are *Alsodeia Bengalensis*, *Mephitidea Wallichii*, *Ixora* (several species but all with white or pale rose flowers), *Gendarussa vulgaris*, *Morinda umbellata*, *Sterculia coccinea*, *Diospyros chartacea*, and others.

The last and lowest stratum is the vegetation which covers the ground. Owing to a certain degree of darkness that reigns in these forests all the year round the number of herbs is comparatively small. In the denser parts the ground is covered with little else than decaying leaves and rotting trunks of trees, but where the forests become more open, as is especially the case along the banks of streams, the vegetation becomes rich and *Strobilanthes flava*, *S. neesii*, *S. fimbriatus* and especially *S. rufescens*, *Phlogacanthus curviflorus*, together with numerous *Scitamineæ* and *Marantaceæ* are abundant.

Here ferns replace the grass; *Davallia strigosa* and *hirta*, *Lindsœa ensifolia*, *Pteris cretica*, *quadri*-and *bi-aurita*, *Nephrodium calcaratum*, *sylvaticum*, *polypodioides* and *esculentum* and numerous Polypods, and on trees and rocks, *Davallia bullata*, *Asplenium nidus* and others, whilst the climbers are chiefly *Lygodium polystachyum* and *pinnatifidum* and *Acrostichum scandens*. Amongst the aerial or epiphytical plants, *Orchideæ* and *Cyrtandraceæ* especially deserve mention, and a few *Scitamineæ* are found growing on trees. The tropical forests of Pegu are very poor in epiphytical plants as compared with those of Tenasserim.

The mosses etc. are but sparingly represented and are restricted more to the rocky slopes and to boulders in and along streams, whilst the tree stems are poorly inhabited, chiefly by scalemosses. Lichens are still more scanty, but bamboos are frequently seen covered by three or four very singular lichens with greenish-white thallus. Of mosses are seen several species of *Fissidens*, *Macromitrium*, *Calymperes* and *Hypna*; of scalemosses *Leyeunia*, *Lophocolea* and similar forms. Fungi are largely developed, especially during the rains, but *Sphœrias* are remarkably rare. An orange coloured Alga *(Chroolepus flavum)* is often seen on stems and branches, and on living leaves one or two other species of green *Algæ* are not unfrequent (chiefly *Scytonema*.)

b—The moist or open tropical forests differ from the last chiefly in their lesser degree of dampness and the reduction of the several vegetative strata to only three or four, as also in the smaller number of climbers; they are thus more open and less difficult to penetrate. They are to a certain extent a combination of mixed and tropical forests, and are found especially along the eastern base of the Pegu Romas. In the Rangoon district they occupy the lower

and moister parts of this range but they usually grow on more gravelly soil or on raised shallow alluvium resting on gravel or sandstones. They are often difficult to distinguish from the mixed forests, the two merging into each other where the terrain is of a varied character. The shrubbery in them is comparatively scanty and often enough the herbage on the ground differs in little or nothing from that in the more shady mixed forests.

The principal trees are such as occur above described in the true tropical forests, but appear to be much more poorly represented in species. To these associate themselves numerous annuals and perennials of the leaf shedding forests, especially of the lower mixed forests.

Temperate forests.

The evergreen hill forests are the product of the influence of elevation. Although they descend in Tenasserim as far down as 3000 feet, they nowhere occur at the same elevation on the Pegu Romas, a result probably due to the impermeability of the soil and to the dry N. W. winds of the hot season.

a.—The dry hill forests occupy the ridges and summits of the hill ranges, resembling, in this respect, the upper mixed forests. They range usually from 4000 to 7000 feet elevation, but along unfavourable exposures (especially along the S. and S. W. faces of ridges) they may be found as low down as 3000 feet. The average height of the trees in them is about 40 to 60 feet and the growth is often stunted and gnarled especially in exposed situations. Botanically they might be called the forests of oaks and *Ternstrœmiaceæ*. The dryness during the hot season is considerable and fires are common, the formation of humus soil is, therefore, only partial. These forests may be divided into "upper dry" and "lower dry."

The "upper dry" are restricted to the highest crests and ridges of the eastern hills, usually above 6000 feet in elevation, and rarely if ever subject to fires owing to their remoteness from human habitations. They gradually pass into the "lower dry" in such a way that it is often quite impossible to say where one begins and the other ends, but where they are much exposed to the prevailing winds and to the influence of the weather they appear to be more abruptly separated. They consist chiefly of stunted and often pygmean trees up to 30 (most of them, however, only up to 20) feet in height, with very short stems and compact and usually spherical crowns varying in colour from a glossy yellowish to a brownish-dark green tint, shewing numerous gnarled and crooked branches. They often grow so close

together that it is difficult to force one's way through them and during heavy gales, which often occur at these heights, this dense mass of a glossy varied foliage is curiously moved by the wind, resembling from a distance the waves of a disturbed sea. Owing to the limited area which rises to such an elevation these forests are necessarily of small extent. On the summit of the Nat-toung, in the Toung-ngoo district east of the Tsittoung river, one of the highest peaks in the chain in British territory, they are cut off very abruptly at the unfavourable situations, giving place to a scanty shrubby vegetation which again soon passes into hill pastures.

The principal trees and shrubs are: *Andromeda ovalifolia*, *Anneslea monticola*, *Terntrsœmia Japonica* (stunted), *Erothroxylon Kunthianum*, *Bucklandia populnea* (stunted), *Rhododendron formosum* and a few others.

Climbers and scandent shrubs occur but are stunted like the trees; they are chiefly *Millettia monticola*, *Brandisia discolor*, *Embelia floribunda*, *Jasminum attenuatum*, *Smilax*, *Rubus rugosus* and *alpestris*. The undergrowth is chiefly composed of a low *Arundinaria* and of *Ardisia crispa*, *Evodia gracilis*, *Hypericum triflorum*, *Strobilanthus fœtidissima*, *Osbeckia crinita* and many others. An erect *Smilax*, *Polystichum aculeatum* and a few other ferns are locally very frequent. Epiphytic plants are numerous, besides a great variety of orchids amongst which a beautiful *Pleione* is most common. *Cyrtandraceæ* also are not uncommon and there are numerous ferns.

The stems aud branches are loaded with mosses and scale-mosses amongst which dense masses of *Hymenophyliaceæ* (chiefly *H. exsertum* and *Javanicum*) are interwoven. During the hot season these shrivel up, but recover with the first shower of rain. Shrubby lichens become more numerous and conspicuous and a *Peltigera*, of a peculiar green colour, is seldom missed amongst the patches of moss.

The "lower dry forests" are stunted forests of a mean height, varying, according to the exposure and resulting degree of dampness, from 50 to 80 feet. The trees somewhat resemble in habit those of the *Dipterocarpus* or laterite forests. They occupy nearly all the exposed ridges from 4000 feet, or often from 3000 feet, and upwards. Fires are frequent but not regular. While in the "upper dry forests" *Ericineæ* formed the typical constituents here *Ternstrœmiaceæ* and *Cupuliferæ* prevail. The more frequent trees are *Ternstrœmia Japonica*, *Eurya Chinensis* and *E. Japonica*, *Anneslia monticola*, *Bucklandia populnea*, *Litsœa foliosa* and other *Laurineæ*, *Quercus brevicuspis* and others,

Albizzia stipulata, *Coffea tetrandra*, *Dillenia aurea*, *Heptapleurum glaucum*, *H. hypoleucum*, *Emblica officinalis*, and others.

Of palms only a stunted *Chamaerhops* occurs and but scantily. A climbing bamboo, with fruit as large as a wood apple, is frequent. Another berry bearing but erect species is locally a prevailing type. In the lower parts Bamboos are still more prevalent and two gigantic species* are common at elevations below 4000 feet.

The climbing plants which seem to occur most frequently are *Mucuna macrocarpa*, with stems nearly as thick as the trees upon which they rest, *Rubus rugosus*, *Embelia ribes* and *E. floribunda*, a fine *Calamus*, *Smilax lanceæfolia* and others.

Of shrubs and half shrubs the following are the more conspicuous:—*Linostoma pauciflorum*, *Melanthesopsis fruticosa*, and *Melastoma malabathricum*, but there are many others.

Amongst ferns *Breynia insignis* is not uncommon, especially in the more shady localities, whilst *Pteris aquilina*, *Gleichenia dichotoma* and *Gl. longissima* are the more prevailing terrestrial ferns, together with *Onychium auratum*, *Blechnum orientale*, etc.

The ground is covered by grasses and other plants in localities where the forest is more open. The most common grasses are: *Arundinella sp.*, *Spodiopogon sp.*, *Heteropogon sp.*, *Androscepia gigantea*, *Panicum montanum*, *plicatum*, *Royleanum*, *Trisetum sp.*, and in lower regions the so called teak grass (*Pollinia tectonum* of Brandis). Besides these a *Phragmitoid* grass, *Imperata cylindrica* and *Thyssanolæna acarifera* are locally not uncommon. *Carex baccans*, *condensata* and several other species, as also *Scleriæ*, are nowhere to be missed.

The trees are inhabited by numerous mosses and scalemosses, as also by lichens, which latter appear here especially developed. A long *Alectoria* depends from nearly all the crooked branches, and shrubby lichens, like *Peltigera*, *Cladonia*, etc., now make their appearance from 6000 feet and upwards, whilst numerous and beautiful orchids, large and small, ornament the stems and branches, e.g. *Oberonia*, *Cœlogyne*, *Cypripedium*, *Cryptochilus*, *Eria*, *Dendrobia*, *Vanda*, *Saccolabium*, etc.

Amongst ferns are *Vittaria falcata*, *Hymenophyllum exsertum* and *Javanicum*, *Asplenium ensiforme* and numerous others. The granitic and schistose rocks are covered by lichens, mosses and *selaginellæ* accompanied by little annual phanerogams

* At page 35, Mr. Kurz gives the names of these two species as Wabo and Kyellowa: but in the list of forest trees; Appendix A. page CXXXVI as Ki-a-lo-wa (*undoubtedly the same as Kyellowa*) and Wabo (*more correctly spelt Kya-lo-wa* and *Wa-bo*) are given as synonymous under the head of *Bambusa Brandisii*.

such as *Sonerila, Xyris wallichii,* and *Didymocarpus mollis*, together with several grasses. Parasites also are plentiful, amongst which *Loranthus hypoleucus*, with its burning red flowers, and *Henslowia heterandra*, with dark green foliage, quickly attract attention. A species of *Viscum*, very near to the European mistletoe, is often seen here. On the roots of trees the curious *Balanophora globosa* is conspicuous. Where exposed the ground affords shelter. to numbers of acrocarpus mosses like *Campylopus*, *Pogonatum*, etc., *Funaria hygrometrica* (var. *Nipalensis*), true to its habits every where in the world, selects burnt up localities, and as fires are extensive so is its distribution. Terrestrial lichens also appear, as *Cladonia* etc., but not so frequently as in the pine forests.

b.—The pine forests are so called from the *Pinus khasya* which forms the greater portion of them, and are local and restricted to unfavourable situations viz the S. and S. W. slopes of the hills. They are much subject to fires which are destructive in the extreme often burning down the finest trees. The average height of these forests, which are very open and without climber vegetation, is from 70 to 80 feet, sometimes more, but along exposed slopes very much less. Really pure pine forests are rarely found; they are more frequently mixed up with trees from the dry hill forests which occupy the various and deep narrow valleys. Of shrubs *Linostoma pauciflorum*, *Melastoma malabathricum*, *Maoutia Puya*, *Lespedeza*, *Desmodium*, etc. occur sparingly. A scandent or semiscandent bamboo with berry like fruit is not uncommon. The ground is, usually, densely covered by the fallen needles of the pines, so much so indeed that no vegetation can spring up except scantily. The principal plants met with, are *Senecio*; *Inula cappa*, *Dianella*, *Panicum montanum*, *Imperata*, *Scleria*, *Androcepia* etc. Of ferns *Gleichenia dichotoma* and *longissima* and *Pteris aquilina* are almost the only ones.

Those pine forests which are mixed up with leafy trees have the ground usually, although not to the same extent, covered by grasses and shrubs similar to those found in the dry hill forests.

In spite of the greater dryness that prevails such epiphytical plants as orchids, asclepiads etc. are still frequent and some of them characteristic. Cryptogams also are numerous, especially the lichens which here become conspicuous. *Baeomyces roseus* forms often large rounded patches on ground destitute of other vegetation.

c.—The damp hill forests, ranging from about 3000 to 6000 feet elevation, so much resemble in external aspect the true tropical forests of the plains that they can be distinguished from them only

by the occurrence of botanically different trees, and chiefly by the total or nearly total absence of certain plant families, such as *Dipterocarpeæ*, *Meliaceæ*, *Sapindaceæ*, *Dilleniaceæ*, *Sterculiaceæ*, *Anacardiaceæ*, and *Sapotaceæ*. The average height stands a little below that of the tropical forests. They are so dense and moist that fires never enter them and the formation of humus is, therefore, undisturbed These forests occur only in favourable situations and in sheltered valleys, especially along streams.

" The great height of the lofty trees composing the damp hill " forests, and also the very short time I spent in them when passing " by, renders it quite impossible for me" remarks Mr. Kurz "to give " a correct idea of the nature of the trees that grow in these for- " ests. I can therefore note only very few of them. *Quercus* (seve- " ral species) and *Cupuliferous* trees generally seemed frequent, " *Ilex daphnephylloides*, *Ternstrœmia Japonica*, *Bucklandia pro-* " *pulnea*, several fig trees, *Eugenia*, *Laurineæ*, *Ostodes paniculata*, " *Podocarpus*, *Gynocardia odorata*, *Diospyros sp.* and numerous " others."

Of smaller trees, *Turpinia nipalensis*, *Cinnamomum*, *Litsœa*, *Calophyllum polyanthum*, *Rhododendron Veitchianum* and sometimes *Rh. arboreum*, *Spathodea ignea*, *Garcinia anomala*, etc.

A semiscandent bamboo, not unlike in foliage to *Melocanna baccifera*, is often met with along streams, as also an elegant tree fern *(Alsophila comosa)* of 20 to 25 feet in height, and *Pandanus furcatus*. " Except a fine *Calamus* or two, I missed " (strange to say) palms, and only at lower elevations met such " trees as *Areca*, *Wallichia*, *Arenga saccharifera*, *Caryota urens*, " and *Licuala peltata*."

Of shrubs, climbers, etc. were observed, *Rubus alpestris* and *Moluccanus*, *Jasminum attenuatum*, several species of *Smilax*, *Hoya fusca*, a *Vernonia*, *Ardisia crispa* and *elliptica*, large climbing *Fici*, *Clematis acuminata*, *Solanum membranaceum*, *Strobilanthes lamioides*, and many others.

The ground is usually destitute of grass clothing, but occasionally small patches of *Carex*, *Scleria elata*? and other species occur. The grass is locally replaced by *Ophiopogon*, *Peliosanthes macrophylla* and *Molineria capitulata*.

Of herbs and perennials, which are often very numerous and luxuriant, especially along the banks of streams, are the following and others:—*Polygonum punctatum* (often epiphytic), *Elatostemma ficoides*, *umbrosum* and another small-leaved species in great profusion, two species of *Sonerila*, many *Aroideæ*, *Strobi-*

lanthes penstemonoides, *Begonia barbata* and *laciniata*, *Ophiorrhiza erubescens*.

Terrestrial ferns are represented by *Polystichum aculeatum*, *Davallia immersa* and *nodosa*, *Pteris bi*-and *quadri-aurita*, *Asplenium ensifolium*, *Gymnogramma ellipticum*, etc.

The plants creeping or trailing round the stems of trees are chiefly *Piperaceæ*, *Aroideæ*, *Lygodium pinnatifidum* and *polystachyum*, *Acrostichum scandens*, etc. Orchids are seldom seen. Mosses and scalemosses cover most of the stems in dense patches, along with *Hymenophylla*, *Vittaria* and *Polypodium*, *Antrophium*, etc., as also *Cyrtandraceæ*, etc. On account of the darkness lichens are rare but epiphyllous lichens together with epiphyllous scalemosses overgrow the leaves.

BB.—Deciduous Forests.

These yield the most valuable timber. They are entirely or almost entirely leafless during the dry weather but, owing to the heavy dew probably, many of the trees put out their young leaves in the hot weather, whilst the shedding is not simultaneous in all trees, nor does it take place always at the same period, setting in later in trees in damper tracts. Jungle fires are common and destructive. The variety of these forests is great and the demarcation between the varieties often very obsolete. The three chief varieties, where they present themselves in a pure character, are well marked, and have been classed above as *Open*, *Mixed* and *Dry*.

Open Forests.

The open or diluvial comprise nearly all those forests found on diluvial formations and include some of the lower mixed of the older classification. Practically they appear as dry and more or less stunted or crooked forests, at present of little value except for the Eng *(Dipterocarpus tuberculatus)* which yields a valuable wood much employed by Burmans and used especially for house posts and for canoes, planking, &c. The trees grow far apart and there is but little undergrowth

Mr. Kurz has divided these open forests into three kinds, but he records with strong approval the remarks of Dr. Brandis, the Inspector General of Forests in India and formerly Conservator of of Forests in Burma, that "Hesitation, therefore, in submitting "reports on a subject (character of forests) the very principles "of which have yet to be developed may appear excusable. "Their investigation unavoidably involves many questions of a "purely scientific nature and it is not always possible to deter-"mine before hand the extent of time required for a satisfactory

" completion of researches of that nature."

These forests, then, according to M. Kurz, are :—

a.—Hill Eng ; not represented in Pegu, but frequent east of the Tsittoung.

b.—Eng, proper.

c.—Lower forests; which in some respects resemble Eng forests, but are destitute of Eng trees.

a.—The Hill Eng forests are found principally on metamorphic or schistose rocks or on laterite, on all the lower spurs of the hills east of the Tsittoung up to 2000 feet elevation. In external appearance they are identical with the Eng forests lower down. The average height varies from 30 to 60 feet. The trees which occur most frequently, after Eng, are : *Tristania Burmanica, Anneslea fragrans, Engelhardtia serrata, Dipterocarpus gonopteris, D. obtusifolius, D. turberculatus, Quercus semiserrata, Q. Brandisiana, Q. Bancana, Q. annulata, Melanorrhœa glabra, Dalbergia cultrata, Pentacme Siamensis* and some others.

The shrubby and perennial vegetation is almost the same as in the (*b*) Eng forests, as are the climbers, orchids and mosses (the last scarce), but lichens, especially the cortical ones, abound; stone lichens are rare. Of herbs the principal are: *Urena lobata, Blumea, Lygodium, Scleria lithosperma, Eugenia sp, Desmodium gyroides, Hedyotis galioides, Crotalaria nereifolia*, etc.

b.—Eng or laterite forests. These grow principally upon laterite, but they occur also on other diluvial formations in a less developed form. The average height is variable, depending chiefly upon the depth of the substratum. In pure laterite it is depressed to from 30 to 40 feet while an admixture of clayey or loamy soil causes the Eng trees to grow up to a height of from 70 to 80 feet. Most of the trees show dark ash grey or blackish stems, usually covered by a very brittle, cracked and tabulated, thick bark. With the exception of Eng and a few others the trees are usually more or less crooked and many have the branching of their crowns gnarled and crooked and unproportionately thick and ungraceful. All these give to these forests a peculiar aspect and, when growing on pure laterite, they possess to a great extent the habit of those alpine stunted forests which are exposed to prevailing storms. The principal tree is Eng *(Dipterocarpus tuberculatus)*, but it is not necessarily present in all localities for there are many so called Eng forests without a single Eng tree in them. Where, however, the laterite is exposed and forms a cavernous glazy rock, Eng is the prevailing tree. Of the other trees which occur in abundance the following are amongst the more important:

Dillenia pulcherrima, *Shorea leucobotrya*, *Pentacme Siamensis*, *Walsura villosa*, *Zizyphus rugosa*, *Melanorrhœa usitatissima*, *Dalbergia cultrata*, *Xylia dolabriformis*, *Nauclea cordifolia*, *Odina wodier* and others; *Pterocarpus Indicus* is rare. One or two stray trees, characteristic of lower mixed forests, are also found and on a laterite spur at Ka-rwe, a little above Tsit-toung, on the left bank of the river of the same name, Teak forms an almost pure but small forest, here partaking of the habits of other trees growing on laterite. On gravelly soil in the Prome district many other trees are found, such as *Dipterocarpus obtusifolius*, *Hiptage arborea*, *Rhus paniculata* and two species of *Gardenia*. Most of the trees in these forests flower during the hottest time of the year, when destitute of leaves. Of Bamboos there are only *Bambusa tulda* and *B. stricta*. Of palms only one, *Phœnix acaulis*, but this is common enough. The shrubbery is meagre and often low, consisting chiefly of *Uvaria ferruginea*, *Ochna fruticulosa*, *Barleria cristata*, *Ixora subsessilis* and some others.

Climbers are scanty and often resemble erect shrubs with a tendency to climb. They are nearly all of the kinds which grow in the dry mixed forests from whence they have probably intruded without, however, finding a congenial substratum.

The herbage is either scanty in the extreme, the reddish, yellowish or white soil being exposed in all directions, or more usually numerous herbs and perennials in company with andropogonous grasses and sedges loosely cover the surface, without being crowded except in clayey or loamy moulds and depressions.

The principal ferns are *Adiantum lunulatum*, *Cheilanthes varians*, *farinosa* and *tenuifolia* and *Nephrodium fœlix mas var. Cochleata*.

"As we travel through these forests we alight often upon "patches of solitary plants, which turn up from time to time, of "such beauty or rarity that they richly compensate a botanist for "the long and hot walk he has to undertake to get at them. "Here are *Solomonia longiciliata*, *Chloranthus insignis*, *Neuracan-* "*thus grandiflorus* and *subuninervius*, *Polygala leptalea*, *Eulophia*, "*Aneilema spectabile*, etc.; there we see a few plants of *Oleandra* "*Cummingii*, a probably new and almost erect Lygodium, a hairy "dull yellow *Gynura*, *Drosera peltata* and *Burmanni*, *Sonerila* "*tenera*, *Blinkworthia lycioides* and others; again we come through "a profusion of a large new species of *Knoxia*, *Smithia grandis*, a "hairy new species of *Cassyta*, a probably new species of *Clausena*, "*Linostoma Siamense*, *Artabotrys Kurzii* or we find in the vesicu- "lar holes of laterite rocks in sheltered places a curious new genus

" of *Aroideæ* with snow-white spathes (*Hapaline Benthamiana*) or " the little plants of an *Ariopsis*.

" During the hot sason a number of gaudy coloured flowers " spring up, making truly a flower garden of the blackened burnt " ground. Such are especially *Scitamineæ* and *Amarylideæ*, as " *Kæmpferia candida* and *Parishii*, *Crinum sp*, *Gastrochilus*, " *Hemiorchis Burmanica*, *Gynura*, etc., besides *Ochna suffruti-* " *cosa* and such like stemless dicotylids.

" The trees, owing to their coarse, fissured bark, are especially " fitted for the support of epiphytical plants, and these are, there- " fore, developed here to a degree which would appear ex- " traordinary were it not that they comprise mostly such plants " as need light rather than dampness for their development. A " host of orchids make their appearance, flowering at the height of " the hot season when they exhibit the splendour of their blos- " soms in a most wonderful manner almost unknown in evergreen " forests. *Dendrobium anceps*, *Dalhousieanum aggregatum*, *bedy-* " *osmum*, *barbatulum*, *cretaceum*, *chrysotoxum*, *formosum*, *moscha-* " *tum*, *nodatum*, etc. *Eriæ*, *Ærides odoratum*, *Bolbophyllum*, " *Saccolabia*, *Vanda teres*, *Bensoni*, *cœrulescens*, *Cymbidium*, etc. " are frequent everywhere. In fact the most peculiar orchids " are restricted to these and other dry forests exposed to the sun, " while such as are identical or nearly allied with Malayan forms " occur only in the evergreen forests, and more especially in the " hill forests.

" *Dischidia nummularia* and several *Hoyas*, along with " *Drymoglossum*, *Niphoboli* and *Platycerium* are the chief plants " on the trees. Mosses are scarce, a *Macromitrium* and a *Leuco-* " *blepharum* being the chief ones on the trees, while *Garckea* " *phascoides* is the most common on the ground. Lichens are here " plentiful and many of them are very remarkable species."

c.—The low forests resemble in most respects the former, but differ from them essentially in that they are greatly mixed up with trees of the lower mixed forests and grow, like these, on clay or loam. The ground is rather densely covered by long and stiff grasses and the Eng tree is seldom found. The soil is either a very heavy, stiff and usually yellowish clay or loam, on which Andropogonous grasses, chiefly, spring up, or a grey alluvial clay on which *Imperata cylindrica* is often the chief grass found. They might, therefore, be divided into two groups, one occurring chiefly along the western slopes of the Roma from Thoon-tshay southwards, while the other is peculiar to the

lands adjoining the eastern slopes of the Roma from the Kwon to near Pegu.

The height and growth of the trees is the same as in the Eng forests. Here are to be found nearly all the trees of both these varieties of forests, and not rarely Teak, Eng and Myat-ra (*Grewia microcos*) are seen growing side by side. Even *Homalium tomentosum*, which so pertinaciously avoids diluvial formations, is found here occasionally.

The following kinds of trees are also to be found associated with the above; *Miliusa velutina*, *Walsura villosa*, *Daphnidium argenteum*, *Albizzia lucida*, *Anogeissus acuminatus*, *Aporosa macrophylla*; *Symplocos racemosa*, several species of *Randia* and *Gardenia*, *Aporosa villosa*, *Zizyphus rugosa*, *Nauclea Brunonis*, *Dillenia pentagyna*, and *pulcherrima*, *Strychnos nux-vomica*, *Xylia dolabriformis*, *Holarrhena pubescens*, *Dalbergia cultrata* and *D. purpurea*, *Terminalia tomentella*, *Odina wodier*, *Pterospermum semisagittatum*, *Terminalia Belerica*, *Lagerstrœmia macrocarpa* and *L. flos reginæ*, *Antidesma diandrum*, *Emblica officinalis*, *Careya arborea*, *Grewia microcos*, *Terminalia alata* and *crenulata*, *Lophopetalum*, etc.

In parts, certain trees become prevalent to the exclusion of the greater part of their usual companions, and forests of *Dalbergia cultrata*, *Terminalia alata*, *Strychnos nux-vomica*, etc., are met with.

Bamboos are comparatively rare but groups of *Wa-hpyoo-ga-le*, *Teng-wa* and *Myeng-wa* are met with.

Climbers are numerous, without, however, impairing the openness of the forest. They are all such as grow in the Eng or lower mixed forests, as *Butea superba*, *Sphenodesma*, *Otosemma macrophylla* and *Calycopteris Roxburghii*.

The undergrowth is composed of rather high but meagre grasses, amongst which the following prevail: *Ischæmum bijugum*, *Gryllus*, and many other species, *Eragrostis Brownei*, *rubens* and two or three other species; *Coix heteroclita*, *Pollinia*, *Androscepia gigantea*, *Hymenachme Indica*, *Panicum angustatum*, *Chloris digitata*, *Ophiurus perforatus*, etc.; *Scleria lithosperma*, *Dimeria*, *Aristida setacea*, *Anthistyria*, *Cymbopogon*, *Schizachyrium brevifolium*, *Cyperus Silhetensis*, *niveus*, etc.; *Panicum brizoides*, and others. When *Imperata cylindrica* is the principal grass few others spring up with it.

Amongst the grasses grow numerous perennials and half shrubby plants, such as *Flemmingia involucrata*, *strobilifera* and one or two other species, *Crotalaria alata*, *acicularis*, *sessiliflora*,

calycina, linifolia and *albida, Teramnus mollis, Dunbaria mollis, Cassia mimusoides*, a *Habenaria* with yellow flowers, *Gloriosa superba, Ophiopogon Wallichii, Sida rhombifolia* and *carpinifolia; Urena rigida* and *speciosa, Micromelum hirsutum, Osbeckia Chinensis, Nelsonia origanoides, Elbermeyera Maclellandii* and *diffusa, Strobilanthes glaucescens* and *phyllostachya, Neurocanthus tetragonostachyus, Uvaria hamosa, Sopubia stricta, Flemmingia lineata, Desmodium polycarpum, trieuetrum, pulchellum Justicanda decussata, Tephrosia purpurea, Urena lobata, Ageratum conyzoides, Vernonia cinerea, Lepidagathis recurva, Phaylopsis, Lygodium pinnatum, Knoxia lasiocarpa, Acrocephalus capitatus, Triumfetta angulata, Costus speciosus, Xyris, Eriocaulon, Impatiens Chinensis, Ardisia Wallichii, Lepidagathis mucronata, Asparagus acerosus, Leea*, two or three species, *Blumea flava* and several other species.

The epiphytical vegetation is much the same as in the Eng forests.

These low forests shew many transitions into lower mixed forests along their lines of contact and it is often very difficult to distinguish between the two.

6—Mixed Forests.

These differ from the open forests amongst other things in their general aspect and in the height and growth of the trees, as also in the prevalence of climbers. They are at the present time most important to a forester, but at the same time are most difficult to subdivide into marked varieties. They may be divided into the two following divisions, each of which may be subdivided again, under its respective headings :—

a.—Alluvial mixed forests.
b.—Upper ditto ditto.

a.—The alluvial mixed forests occupy chiefly the alluvial plains from the base of the hills to the banks of the larger rivers. Towards the Irrawaddy, the Tsit-toung and other large rivers they assume the character of savannahs, while towards the hills they gradually pass into the upper mixed forests. They are of a moister character than the upper mixed forests and, therefore, are richer in trees and climbers but lower in growth and much poorer in bamboo growth. Kya-thoung-wa and Wa-ra are rarely if ever seen in true lower mixed forests, and a number of small herbs, indicative of a greater dryness and more light, are here wanting or at least are very rare.

aa.—Lower mixed forests.
bb.—Savannah ditto.
cc.—Beach ditto.

aa.—The lower mixed forests are distinguished from the low forests with which they often alternate chiefly by the absence of trees characteristic of laterite forests, and by the absence or scarcity of any dense grass-clothing on the ground. Their general aspect is also greatly different, being more closed by numerous climbers and creepers. The average height is about 70 to 80 and sometimes up to 100 feet. The principal trees here are *Dillenia pentagyna*, *Cratoxylon nereifolium*, *Bombax malabaricum*, *Sterculia colorata*, *Pterospermum semisagittatum*, *Schleichera trijuga*, *Mangifera sp.*, *Odina wodier*, *Terminalia tomentella*, *Anogeissus acuminatus*, *Lagerstrœmia reginæ*, *Homalium tomentosum*, *Albizzia procera*, *Nauclea Brunonis*, *diversifolia* and *cordifolia*, *Ficus cuneifolia* and *hispida*, *Cassia fistula*, *Strychnos nux vomica*, *Careya arborea* and *Barringtonia acutangula*.

Of bamboos are chiefly to be found Teng-wa and Wa-hpyoo-ga-le, and towards the Prome district Myeng-wa. The shrubbery is formed of *Thespesia lampas*, *Grewia hirsuta*, *Premna macrophylla* and *amplectens*, *Sauropus albicans* and *Ceratogynum*, *Baliospermum montanum*, two species of *Calamii*, *Desmodium cephalotes*, *triquetrum*, *polycarpum* and *pulchellum*, *Flemmingia congesta*, *strobilifera*, etc., *Grumilea elongata* in moister localities, *Helicteres plebeja*, *Ardisia Wallichii*, and others.

Amongst climbers the most conspicuous are *Butea superba*, *Spatholobus Roxburghii*, *Gnetum scandens*, *Entada purshæta*, *Naravelia Zeylanica*, *Uvaria macrophylla*, *Stephania hernandifolia*, *Buettneria pilosa*, *Cardiopteris lobata*, *Celastrus paniculatus*, *Zizyphus œnoplia*, *Colubrina Asiatica*, *Gouania leptostachya*, *Vitis Linnæi*, *adnata* and other species.

The herbs and perennial plants are not usually very crowded but grow at some distance from each other, so that the grey or yellowish soil is exposed everywhere. These are chiefly *Scitamineæ*, such as *Costus speciosus*, one or two species of *Amomum*, *Zingiber squarrosum*, etc.; *Hitchenia molliuscula*, two or three species of *Phrynum*, *Kæmpferia*, *Hemiorchis Burmanica*, etc., as also *Musa rubra*, which latter is especially frequent, *Sida carpinifolia* and *rhombifolia*, *Urena lobata*, *Triumfetta angulata*, *Corchorus angulatus*, *Leea latifolia*, *Staphylea hirta*, etc.

Mosses and scalemosses are not uncommon on trees, but are poorly represented in species, the most conpicuous of them being a *Meteorium* and a *Neckera*. On the ground *Fissidens* prevails. Lichens are frequent, but are not so fairly developed as in the open forests.

Orchids are frequent, but are of widely distributed forms,

such as *Cymbidium*, *Pholidota*, *Eria*, *Saccolabium*, *Dendrobium*, etc. Of other epiphytals a few ferns are seen, as *Platycerium biforme*, *Drymoglossum piloselloides*, *Acrostichum scandens*, *Davallia elegans*, *Polypodium quercifolium*, *adnascens* and *irioides*. beside *Hoyæ* and *Dischidiæ*. On the ground are often met *Pteris Cretica*, *longifolia* and *quadri-aurita*, *Asplenium esculentum*, *Nephrodium molle*, *Acrostichum appendiculatum* and a few others,

Parasites are very plentiful and become especially conspicuous during the period of leaf-shedding, when they appear as evergreen and more or less compact spherical bushes, infesting often every branch of a tree and looking like as many aerial spokes. *Loranthus obtectus*, *ferrugineus*, *rhopalocarpus*, *buddleoides*, *pentandrus*, *langiflorus*, as also *Viscum articulatum* are the most troublesome.

bb.—The Savannah forests occupy chiefly deep alluvium where they attain their greatest development near the larger rivers. They appear also in shallower alluvium between hill ranges, along larger streams, especially when these run through open valleys.

The trees are as low as those in the Eng forests but differ a great deal from the Eng-forest trees in their habits and growth. They have very short stems (a peculiarity produced by all deep alluviums) and are often not higher than the elephant-grass that surrounds them; their crowns are usually disproportionately developed, rounded and spreading, or sometimes much lengthened or flattened out. There are, however, many exceptions with regard to the last mentioned quality.

The chief character of these forests lies in the very dense, almost impenetrable, growth of elephant-grass, amongst which the trees grow up apart and often at great distances from one another; in which latter case the localities partake more of the character of true Savannahs. Owing to the coarse, almost woody, stems of these coarse grasses, jungle fires, which are here regular, do great damage, for nearly all the stems of the trees are found on examination, to be scorched or otherwise injured. The number of species of trees is here greatly reduced. All these trees, with hardly any exception, grow also in the lower mixed forests, whence they most probably have immigrated.

Sometimes the trees grow close together, when they assume more the character of lower mixed forests, from which however, they still can easily be distinguished by their undergrowth consisting of coarse elephant-grass.

The trees that are chiefly found here are *Streblus aspera*, *Butea frondosa*, *Nauclea Wallichiana*, *sericea*, and sometimes also

N. diversifolia, Ficus fistulosa, Terminalia crenata, Anogeissus acuminatus var., Dalbergia cultrata and *purpurea, Careya arborea, Lagerstrœmia reginæ* and *macrocarpa, Terminalia pyrifolia, Strychnos nux vomica, Vitex Leucoxylon, Acacia catechuoides, Tectona grandis, Zizyphus jujuba, Pterospermum semisagittatum, Antidesma Ghœsembilla, Kydia calycina, Odina wodier, Stereospermum chelonioides, Ficus cordifolia, Calosanthes Indica, Randia uliginosa, Gardenia sessiliflora, Albizzia elata, Tetranthera Roxburghii*, and a few others.

But besides these nearly all of the trees mentioned as growing in the lower mixed forests can be found, the one here, the other there, without, however, giving a different character to these forests.

The undergrowth is the so-called elephant-grass, under which denomination the coarse grasses generally pass. Such are *Saccharum spontaneum* and another broad-leaved species, *Andropogon muricatum, Coix heteroclita, Phragmites, Roxburghii* and another species, sometimes also *Coix lacryma* and *Imperata cylindrica*. The former-named grasses grow so high that a man on horseback is completely concealed. The culms of these wild sugarcanes grow to be nearly as thick as a finger and in strength equal certain small species of bamboo *(Arundinariæ)*. At the same time the growth is exceedingly dense.

Only a few shrubs and larger plants are seen such as *Solanum Indicum, Melochia corchorifolia* and *Hygrophila salicifolia*. Smaller herbs and perennials are so subordinate that unless specially searched for they are hardly observed. Such are, chiefly, *Microrhynchus glaber* and *asplenifolius, Ophioxylon serpentinum, Ardisia Wallichii* and *Hemiagraphis hirta*. Sometimes tracts are found destitute of elephant-grass but covered by *Imperata cylindrica*, the so-called thatch-grass, in which case still fewer plants are met with. The stiff culms of *Phragmites* and of a broad-leaved *Saccharum*, often as thick as a finger, are capital supports for twiners, which are plentiful but which do not change the monotony of these grass plains. Those which most frequently occur are: twining *Convolvulaceæ* and *Leguminosæ*, as *Ipomœa vitifolia* and *cymosa, Phaseolus calcaratus, Cylista scariosa, Atylosia mollis, Calonyction grandiflorum, Teramnus labialis*, a yellow *Lepistemon* and a yellow flowered *Vigna*.

Where the trees get closer scandent shrubs and climbers of the common kinds appear, like *Calycopteris Roxburghii, Butea superba, Spatholobus Roxburghii, Brachypterum scandens, Briedelia scandens, Streptocaulon extensum, Celastrus paniculatus, Acacia*

pinnata, *Otosemma macrophylla*, and similar ones from the lower mixed forests.

Few epiphytical plants occur on trees although light is plentiful and the surface of the bark appears very favourable for their reception. Jungle fires are most probably the cause of this. Orchids are poorly represented; besides the never-failing *Hoyæ*, the following ferns:—*Niphobolus*, *Drymoglossum pilloselloides*, *Polypodium quercifolium* and *Platycerium* are frequently observed.

cc.—The beach jungles are a sort of lower mixed forest containing a combination of trees which occur chiefly along the sandy beaches of the sea. They are seldom of any great extent but usually form a narrow strip, much interrupted by other forests, wherever clayey or rocky ground turns up; they never become inundated by the tides, although they often border the beach at the water's edge. They are to a certain degree a mixture of tidal forests and of the surrounding inland forest, and appear often so blended together as to render their recognition difficult. If of a pure character, the following are the principal trees found growing:—*Pongamia glabra*, *Erythrina Indica*, *Bombax malabaricum*, *Paritium litiaceum*, *Pandanus verus*, *Cynometra bijuga*, *Guettarda speciosa*, *Cycas Rumphii*, *Thespesia populnea*, along with *Scævola Kœnigii*, *Colubrina Asiatica*, *Derris sinuata*, *Breynia rhamnoides*, *Brachypterum scandens*, *Cæsalpinia Bandhuc*, *Ipomœas*, etc.; creeping on the sand between these shrubs and trees, or exposed on the sandy beaches themselves, are seen *Ipomœa pes capræ*, *Ischæmum muticum*, along with some other grasses, etc.; *Polypodium quercifolium* is, as a rule, very frequent on trees along with *Hoya*, *Dischidia*, and several orchids.

These forests are very incompletely, if at all, developed in Pegu, owing to the clayey alluvium; but they occur not only along the Arakan coast but still more so in Tenasserim, where *Casuarina muricata* becomes a prevailing tree, while *Spinifex squarrosus*, a curious grass, facilitates the binding of the loose sand.

b.—The upper mixed forests are the principal seat of teak and they might, therefore, be called par excellence the teak forests of Burma. They occupy exclusively the soft sandstone formations of the Pegu Roma, and also the older strata of the hills to the eastward. Those growing on the latter formations differ, however, a good deal from those growing on sandstone not only in their general growth but also by an admixture of trees which do not occur on the sandstone. While on the Pegu Roma they attain an average height (especially on

the higher and drier ridges) of about 120 feet, those growing on syenitic and schistose substrata seldom exceed 80 to 90 feet in height and the growth of their clean stems is never so straight and regular, in other words the soft sandstones produce lofty while metamorphic rocks yield only big trees. Grass clothing of the soil is only exceptional, and is then chiefly composed of the so-called teak-grass, (a *Pollinia*). The usually yellowish or grey surface soil, the product of disintegration of sandstone, is therefore everywhere exposed. Jungle-fires are regular and frequent, but not very injurious except in years when the bamboos have died off. The number of species of trees is smaller than in the lower mixed forest, and still more so on the higher ridges; the trees also usually grow more remote from each other, these forests are in fact higher grown but in species are poorer than the lower mixed forests. Especially large bamboos play here an important role, while certain kinds of shaw trees especially *Sterculia villosa* and *urens*, along with *Milletia Brandisiana*, *Grewia elastica*, *Duabanga grandiflora*, and *Erythrina stricta*, and *suberosa* may be called the characteristic trees of these forests. Teak is here the rule—its absence the exception. The southern extremity of the Roma is especially poor in teak.

The chief trees are. *Xylia dolabriformis*, an almost unfailing companion of the teak-tree, *Dillenia parviflora*, *Garcinia cowa*, *Eugenia Jambolana*, *Bombax insignis*, *Sterculia urens fœtida* and *villosa*, *Pterospermum semisagittatum*, *Eriolæna Candollei*, *Garuga pinnata*, *Bursera serrata* and some others.

Shrubs are few and meagre: the chief of them are *Helicteres plebeja*, *Thespesia Lampas*, *Grewia hirsuta*, *Limonia alternifolia*, *Baliospermum montanum*, *Desmodium gyroides*, *pulchellum*, *triquetrum* and *strangulatum*, *Premna hirta*, *Sauropus compressus* and *ceratogynum*, *Clerodendron urticifolium*, *uretans* and another species, *Flemmingia*, *Vernonia saligna* and *divergens*, a small, broad-leaved *Cœlodiscus*, *Bauhinia polycarpa*, etc. Climbers are comparatively few in individuals, but are nevertheless conspicuous without interfering much with the openness of these forests. Such are especially two or three species of *Combretum*, *Calycopteris*, two or three species of epiphytical *Fici*, *Hemidesmus Wallichii*, *Embelia villosa*, *Thunbergia laurifolia*, *Cylista scariosa*, *Abrus precatorius*, *Butea superba*, *Spatholobus Roxburghii*, *Argyreia capitata* and another species along streams, *Pueraria tuberosa*, *Symphorema involucrata*; *Sphenodesma unguiculata*, *Mezoneuron enneaphyllum*, *Pterolobium macropterum*, *Acacia rugata* and *pinnata*, *Ipomœa barbata*, *Otosemma macrophylla*, *Cyclea peltata*, etc.

The exposed ground nourishes the following more frequent forms: *Sida carpinifolia* and *rhombifolia*, *Urena lobata*, *Triumfetta annua*, *Pimpinella Heyneana*, *Nelsonia*, *Phaylopsis*, *Strobilanthes phyllostachya*, *glaucescens*, *auriculatus*, and sometimes *pterocaulis*, *Dædalacanthus macrophyllus*, *Barberia polytricha*, *Neuracanthus tetragonostachyus*, *Lepidagathis falcata*, *incurva*, *mucronata* and *fasciculata*, *Crotalaria acicularis*, *albida*, *dubia* and a new species (near *C. Assamica*), *Mecopus nidulans*, *Uraria refracta*, *Canscora decussata*, *Æginetia Indica*, *Anisochilus pallidus*, *Achyrospermum*, *Leucas procumbens*, *Gomphostemma*, *Æerva scandens*, *Hedyotis scapigera*, *Argyreia sp.* almost erect with broad, large leaves, *Blumea virens*, *runcinata var.*, *hymenophylla*, *racemosa*, *holosericea*, etc., *Peristrophe*, *Mitreola*, *Musa glauca*, *Geodorum*, *Hypoxis orchioides*, *Stemona Griffithii*, *Aneilema herbaceum*, *ovatum* and *scapiflorum*, *Scleria* locally, *Hypolytrum trinerve*, *Cyperus mœstus*, *Panicum plicatum*, *Centotheca*, *Selaginella semicordata* and *tenera*, *Adenostemma latifolium*, *Oplismenus sp.*, *Crotalaria filiformis*, *Sonerila tenella*, *Justicia decussata*, *Hibiscus furcatus* and another species, a yellow, ish-leaved variety of *Elephantopus scaber*, *Lygodium bipinnatum* *Acrocephalus capitatus*, *Hitchenia*, *sp.*, *Pollinia tectonum*, *Blumea flava*, *Crotalaria alata*, *Corchorus acutangulus*, *Panicum montanum* and others.

Terrestrial ferns are few in number and are all of sorts tolerant of a great degree of dryness, such as *Pteris longifolia*, *cretica*, *Nephrodium filix mas var*, *cochleata*, *Adiantum lunulatum*, etc. Orchids and other epiphytical plants are not conspicuous here and are mostly restricted to the upper parts of trees. They are almost the same as those occurring in the lower mixed forests. Mosses are still scarcer but a few species of *Fissidens* and *Hypnum* cover in profusion the wet sandstone rocks along the streams, where also *Selaginellæ*, *Marchantiaceæ* and *Jungermanniaceæ* appear. Stone-lichens are remarkably rare along the whole of the Roma range and only along the Za-ma-yee were a few met with by Mr. Kurz on the boulders of compact sandstone and also a species on fossiliferous rocks between Wa-nek and Keng-pa-dee.

These upper mixed forests might be divided into moist and dry upper mixed forests. Such a distinction, however, is too artificial, for these two varieties are nothing more than the product of favourable and unfavourable exposures.

Wallichia oblonga, *Colocasia fornicata*, *Grumilea elongata*, *Aneilema ovatum*, *Cyperus mœstus*, *Panicum plicatum*, *Phrynia* and other *Scitamineæ*, *Girardinia heterophylla*, *Bœhmeria diffusa*,

Chavica Siriboa, the rare and beautiful *Impatiens Tavoyana* with flowers much resembling those of *Jonidium*, and especially also *Ophiopogon Wallichii* are all such plants as settle themselves when conditions are favourable to their growth. The teak-grass also is more frequently met with, especially along the northern slopes of the ridges. The dry upper mixed forests are destitute of such plants as those just mentioned and when *myeng-wa* gets the upperhand, as is often the case, the vegetation on the ground is reduced to only a few such plants as are of more general occurrence.

7.—Dry Forests.

These are restricted to the formation of compact calcareous sandstone and to shallow alluvium resting on such or on diluvium.

The trees are generally middle-sized, of an average height of from 50 to 70 feet, but on the higher Roma ridges, under favourable conditions, they grow up to about 100 feet. Carbonate of lime appears to be the principal cause of the modification of vegetation here.

The forest is very open but looks rather uninviting owing to the prevalance of thorny trees and shrubs. Jungle-fires are here more frequent than in any other forests in Burma and, when the *myeng-wa* has died off, they become destructive.

a. The mixed dry forests very much resemble in external aspect those forests in Behar which grow on the lower stony hills. The chief trees, besides teak (which is also frequent but of very inferior growth), are *Dalbergia cultrata*, *Pentacme Siamensis*, *Dipterocarpus tuberculatus* locally, *Diospyros Burmanicus*, *Buchanania latifolia*, *Cratæva religiosa*, *Cochlospermum Gossypium*, *Hiptage arborea*, *Harrisonia Bennetii* frequent, *Balanites Roxburghii* here and there, *Melia Azedarach* and *azadirachta*, *Chickrassia velutina*, *Zizyphus Jujuba*, *Combretum apetalum*, *Sideroxylon tomentosum*, *Dalbergia purpurea*, *Calosanthes Indica*, *Microptelea parvifolia*, *Pterocarpus Indicus*, *Premna pyramidata*, *Albizzia lebbek*, etc.

Of shrubs and little shrub-like trees deserving mention are, *Thespesia Lampas*, *Barleria cristata* and *dichotoma*, *Desmodium pulchellum*, *Azima tetracantha*, *Posoqueria spinosa* and *pubescens*, *Calotropis gigantea*, *Woodfordia fruticosa*, *Tephrosia purpurea*, *Flemmingia lineata* and two or three other species, *Cassia absus*, *Clerodendron infortunatum*, *Collæa lutea*, etc.

The only palms are an erect *Calamus* (*C. fasciculatus*) and *Phœnix acaulis*.

The more conspicuous climber vegetation consists of *Bauhinia diphylla*, *Hymenopyramis brachiata*, *Capparis horrida*,

crassifolia and *polymorpha*, sometimes *Zanonia sarcorphylla* and *Vitis quadrangularis*, *Sphænodesma*, *Wattakaka viridiflora*, *Holmskioldia sanguinea*, *Hoya orbiculata* and another species, *Opilia amentacea*, *Hemidesmus Wallichii*, *Spotholobus Roxburghii*, *Congea*, *Cocculus Leæba*, *Bryonia laciniosa*, *Mezoneuron enneaphyllum*, *Cæsalpinia* one or two species, *Aristolochia Indica*, *Vallaris dichotoma*, *Scindapsus officinalis*, etc.

Bambusa stricta is the chief bamboo, besides which only *Bambusa tulda* is found, the latter chiefly along streams.

Most of the herbs and perennials are such as are found also in the mixed and open forests, like *Sida rhombifolia*, *acuta* and *humilis*, *Barleria polytricha*, *Neuracanthus tetragonostachyus*, *Justicia decussata*, *Mitreola sp.*, *Eragrostis* several species, *Desmodium triquetrum*, *Urena lobata*, *Lepidagathis incurva*, *Blumea flava*, *racemosa*, etc., *Lygodium bipinnatum*, *Knoxia lasiocarpa*, *Costus speciosus*, *Scleria*, *Tephrosia purpurea*, *Rhynchosia sp.*, *Cephalostigma*, *Stemona Griffithii*, *Urginea Indica*, *Mitreola paniculata*, *Chrysopogon Gryllus*, *Anthistyria*, and others. But not a few appear here for the first time, being found nowhere else in Pegu as *Abutilon Indicum*, *Blepharis Maderaspatana*, *Andrographis tenera*, *Justicia Betonica*, *Tephrosia tinctoria var.*, etc.

Lichens are less frequent than one would expect in such open forests and it is only in more favourable situations that they are really conspicuous. Mosses and scale-mosses are rare and so are, during the hot season, the fungi, of which only a few *Polypori* are seen. *Algæ* also are scarce, at least in number of species. Epiphytical plants are represented, although in modest numbers, chiefly by *Dendrobia* and *Saccolabia*. Ferns, terrestrial and epiphytical, are to be found in widely distributed forms but in very small numbers. Those mostly seen are *Adiantum lunulatum* aud *rhizophorum*, *Niphobolus adnascens* and *Platycerium*.

b. The principal tree in the Sha forests is, as the name given to these forests indicates, the Sha *(Acacia catechu)*. This tree, although it also occurs sparingly in the Irrawaddy zone, becomes here a conspicuous feature, in the same way as eng, teak and similar trees do in other parts of Pegu. Along with Sha a small number of trees, a curious mixture of open and mixed forests species, occur together with a few trees which are peculiar to the Prome zone.

c. The upper dry forests may best be designated as crooked and low upper mixed forests, with an admixture of dry forest trees, containing certain temperate forms, like *Vacci-*

nium, *Heracleum*, *Hymenopogon*, *Didymocarpus*, etc., indicative of the influence of elevation. The average height of trees is here reduced to a minimum, *viz.*, from 10 to 30 feet, and the trees are scattered and crooked like those in an Eng-forest. Their aspect is peculiar in the extreme. This strange growth of trees is not attributable to elevation but to two powerful agencies, *viz.*, the dry winds and the dry climate generally (they are situated in and near the Prome zone), the influence of which is increased by the second agency, *viz.*, the presence of lime in the sandstone. Besides the unfavourable conditions already named to which these forests are subjected must also be added their exposed situation and the solar radiation ; jungle-fires occur regularly, burning not only the scanty dried up vegetation but also running up the short stems of the little trees and often consuming the shrivelled up mosses and grasses that grow on them.

A tree that is seldom seen in southern Pegu but which becomes frequent in the Prome zone is *Hiptage arborea*, a conspicuous and principal constituent of these forests. With it grow a number of others, nearly all denizens also of the upper mixed forests, such as *Sterculia villosa* and *colorata*, *Grewia elastica*, *Gardinia suavis* and *sessiliflora*, *Croton oblongifolium*, *Dalbergia cultrata*, *Eriolœna*, a *Bauhinia* with large, beautiful flowers, *Kydia calycina*, *Erythrina sp.*, *Pterospermum aceroides*, *Bombax insigne*, *Heteropanax fragrans*, *Grislea tomentosa*, *Emblica officinalis*, *Dillenia pentagyna*, *Flacourtia cataphracta*, *Dalbergia purpurea*, and a few others.

True erect shrubs are seldom met with here but of climbers are seen *Pueraria tuberosa*, *Acacia rugata*, *Congea*, *Calycopteris*, etc.

Epiphytical plants are more conspicuous here than in any of the other varieties of leaf-shedding forests. Mosses and scale-mosses are not numerous in species, but *Macromitrium Moorcroftii* and *ellipticum* and *Meteorium squarrosum* are so plentiful along with *Brathymenium Hookeri*, *Hyophila Burmensis*, *Rozea decolorata*, etc., that they literally clothe the northern face of the stems and branches of trees, although they are quite shrivelled up during the hot season. The southern and south-western faces are occupied by light-loving lichens of common forms, especially a species of *Opegrapha* and *Lecidea*. A fine large shrubby *Vaccinium* (*Thibaudia obliqua*, *Griff.*) with brilliant scarlet flowers is to be seen everywhere in the branchings of the trees, and *Hymenopogon parasiticus* and a small viviparous Aroid, besides a small-leaved pendulous *Æschynanthus* (*A. gracilis?*) make the

contrast between the tropical dry vegetation and that of the temperate forests only more conspicuous and interesting to a botanist.

Orchids are numerous, and the plentiful *Dendrobia* with white, rose-coloured, yellow, and purplish flowers form a splendid sight in these sunny regions. Of parasites *Loranthus farinosus* and *ferrugineus* were observed.

The chief, or rather only, bamboo here is *Bambusa stricta* (myeng-wa) which grows all along the crests, and especially along the unfavourable exposures; "also a rather small bamboo, proba-" bly a *Schizostachyum*, near or identical with my *Sch. flavescens*, " which seems really to be restricted to the N. E. side of the Kam-" bala toung, just beneath its top, for I never met with these pecu-" liar bamboos any where in Burmah except here. However, this " bamboo does not strictly belong to these upper dry forests, but " rather to the flora of the evergreen forests, which ascend here " along a deep gorge up to the top of Kambala toung. Although " the undergrowth during my visit was perfectly burnt down, I was " able in some of the less injured localities to note the following " plants, which especially interested me, *viz.*, an *Umbellifer* (*He-" racleum Burmanicum*) four to six feet high and two species of " *Cyrtandraceæ* (a *Baca* and a *Didymocarpus*) as also a grass-look-" ing like *Agrostis*, which locally prevailed here." The *Heracleum* grow abundantly here all along the higher crests of the main range of the Roma. The other herbs and perennials were nearly all of the nature of those which occur also in the dry upper mixed forests, such as *Triumfetta annua*, *Panicum montanum*, *Sida rhombifolia*, a villous variety of *Urena lobata*, *Pollinia tectonum*, *Ammannia multiflora*, *Justicia decussata*, *Desmodium triquetrum* and *pulchellum*, *Strobilanthes scaber*, *auriculatus*, *phyllostachya* and *dasysperma*, *Dædalacanthus macrophyllus*, *Barleria polytricha*, *Lepidagathis mucronata*, *Thespesia Lampas*, *Lepidagathis fasciculata*, *Thyssanolæna acarifera*, *Flemmingia*, *Ischæmum sp*, etc.

On shady sandstone rocks of favourable exposure a few mosses along with *Selaginella* occur, and a *Metzgeria*, too, is not infrequent. A peculiar yellowish-green Alga (*Bulbochæte Peguana*) is met with growing at the tips of a moss in such a way that the rock wall, on which it grows, appears as if overgrown by a *Jungermannia*.

AA.—LAND VEGETATION.

The Land vegetation comprises :—

8. The bamboo forests.
9. The savannahs.
10. The natural pastures, and finally,
11. The riparian vegetation.

8.—BAMBOO FORESTS.

The chief character of the bamboo forests lies in their great uniformity and in the poorness of their undergrowth. Seldom more than two different kinds and often only a single kind is found and, therefore, the different varieties of the forests might justly be called after the prevailing description of bamboo that is found in them. Such bamboos as are locally found to form for themselves, without an admixture of higher trees, are *myeng-wa*, *teng-wa*, *kya-toung-wa* and *wa-hpyoo-ga-le*, all growing on rocky strata or on shallow alluvium, while *Bambusa spinosa* is restricted to the plains in deep alluvium near larger rivers. All the bamboo stocks usually flower together at the same time, and this is the case also with those growing as undergrowth in the forests ; they then die off one by one after maturing their seeds. It is believed that they do so regularly after a certain number of years, which is variously set down at from 40 to 60. For the larger kinds this may be a fair estimate.

Shrubs or other kinds of woody plants are so few as hardly to need mention and only where the forests become more open, or along their borders, do they appear in modest numbers ; all these are of an ubiquitous nature. In the same way herbaceous plants are scarce in the interior but become more conspicuous in open situations, where such plants as *Cyperi Blumea*, *lacera*, and several other species, *Flemmingia lineata*, and another species, *Rungia repens*, *Leeæ*, etc. are found.

During the time of flowering, when the leaves are shed either partially or entirely, numerous light-loving plants spring up which, no doubt, have come over from the surrounding mixed forests ; and in low situations various grasses of the savannah character spread rapidly, accompanied by shrubs and other plants of a similar character.

Where the bamboo grows very thickly and the species is one which may be reckoned amongst evergreens (at least under certain conditions) *cryptogams* settle in numbers, and many a peculiar description of moss and lichen is met with. A *Hypnum* is then not infrequent, inhabiting chiefly the lower nodes of the culms, while some very remarkable lichens form white

or greenish thalli on the stems further up, fructifying, however, only rarely. On the ground, too, several mosses, as *Hypnum* and *Fissidens* become sometimes conspicuous, forming lovely green, dense patches.

9.—Savannahs.

These savannahs, or, as they are often called by Europeans in Pegu, elephant-grass jungles, cover the plains in deep alluvium, where the arboreous growth has been either quite suppressed by the powerful coarse grasses that compose them, or the trees are so scattered that only one or two can be seen at great distances from each other; they do not, therefore, form true forests. Along the Irrawaddy, especially towards its delta, they are often very extended, and in the lower parts between the Pegu and Tsittoung rivers, at about the latitude of the town of Pegu, they assuem such dimensions that they may fairly be compared with those occurring in America. The plants that grow here are the very same as those forming the undergrowth of the savannah forests, *viz:* the different kinds of elephant grass, along with those shrubs and herbs mentioned already under 6 *a. bb.* (p. p. 86-8.)

Little creeks often intersect these forests and along such are often found vividly green patches of *Carex Wallichiana*, further *Helminthostachys*, *Ceratopteris*, *Adiantum lunulatum*, *Asplenium esculentum*, *Polypodium proliferum*, and sometimes *Nephrodium molle*. Towards the tidal zone these savannahs become more extended, passing into tidal savannahs, in which *Arrhenatherum muricatum*, *Eragrostis procera*, *Cyperus tegetus*, and such like tidal grasses become conspicuous. Also *Tamarix*, *Pluchea*, *Glochidion*, and other tidal shrubs along with trees, such as *Paritium tiliaceum*, *Erythrina ovalifolia*, *Butea frondosa*, *Bombax*, *Thespesia*, and similar ones, scattered over the plains, turn up one by one towards the south until the tidal forests themselves are entered.

10.—Natural pastures.

The natural pastures in contradistinction to meadows, which latter are either produced by culture or grow up in neglected culture-lands, are of very limited occurrence, for they are usually replaced by the savannahs and bamboo forests described above. The characteristic of these pastures is the absence or scarcity of such coarse grasses as have been already treated of as elephant-grasses. While the savannahs give fodder only to buffaloes and elephants these afford pasturage for domestic cattle. They are found best developed in the higher regions of the hill ranges, especially in the alpine region. Those which occur lower down in the plains are all of very doubtful character, being either the under

growth, left after forests have disappeared b causes, or the growth upon tracts of land which r or the other peculiarity by which the growth of tre essed. The hills of Burma are not high enougl the Himalaya, alpine pastures which come nea pas-tures, in aspect as well as in character, and ol-lowing three varieties.

a.—Long-grassed or jungle pa
b.—Short-grassed or lowland
c.—Hill pastures.

a. The long-grassed pasture is a va be found principally on shallow alluvium re ble strata, chiefly along the base of the Roma ures are found most developed in the Poo-zwon- spe-cially on the cultivated alluvium in the neig eng where they alternate with and often border hey are actually nothing but the undergrowth o and consist of similar andropogonous grasses ilar shrubs and other plants which are to be fou

b. The lowland pastures appear eithe e or as moist or sappy pastures. The follow on the dry:—*Chrysopogon aciculatus, Spac lvis, Alysicarpus vaginalis, Eragrostis, Scleria, stylis diphylla, Ischæmum rugosum, Sporobolus di acty-lon, Dactyloctenium,* etc., along with *Sida re erea, Desmodium triflorum, Osbeckia, Sida acu nides* and *repens, Lepidagathis hyalina, Knoxia*

During the dry season *Gramineæ* prev rains *Cyperaceæ* get the supremacy and then asso er of other plants of which, during the hot seaso can be seen, such as *Geissaspis cristata, Smithi nnia juncea, Anilema ochraceum, Drosera Indi dica, Selaginella Junghunii, Impatiens Chinensi flora A. nanum* and *A. vaginatum* and such like

The moist or sappy pastures are to be wam-py places or in shallow lakes that dry up ason. The vegetation consists of a very few soft and sappy grasses, such as *Hymenachme m upta, Paspalum scrobiculatum, Panicum crus ale,* a soft *Isachme, Leersia hexandra* and a grow in great profusion, sometimes to a mass kness which floats when the rains set in; th ating meadows very fine to look at but very di even

with boats as the boats soon become so entangled in the mass of vegetable matter that no progress can be made except by cutting it. Owing to the moist situation swamp-plants accompany these grasses, such as *Jussiæa repens* and *subfruticosa*, *Adenosma triflorum*, *Xyris*, *Eriocaulon*, *Scirpus Juncoides*, *Hygrophila salicifolia Dysophylla verticillata*, *Justicia peploides*, *Hydrocotyle Asiatica*, *Commelyna communis*, etc.

The latter variety offers possibly the best pasturage for all kinds of cattle. In general appearance they resemble European meadows more than any others do between the tropics. Those that cover the bottom of shallow lakes offer also, during the hottest part of the year, splendid emerald green grass plains of limited extent, but they are chiefly restricted to the lower parts of the Tsit-toung valley, especially north of the town of Pegu, while in the Irrawaddy valley, on account of the greater dryness of the atmosphere, they often entirely disappear around the swamps of the savannahs.

c. The hill pastures are of limited extent and are restricted to the sub-temperate region above 6,000 feet in elevation. Such as deserve the name of hill pastures are met with on the higher part of the Loko ridges and on the top of the Nat-toung itself. The escarpments of a western and south-western situation are also often occupied by them as low down as 5,000 feet. They are subject to jungle-fires.

They consist chiefly of a coarse, bluish *Arundinella* and a coarse, hairy *Andropogon*, along with a species of *Ischæmum* and a tender *Bathraterum* as also a few other grasses and *Scirpeæ*. Of other plants are two species of *Gentiana*, a narrow-leaved *Ophelia*, *Anaphalis adnata*, *Osbeckia sp.*, *Pteris aquilina*, *Gleichenia longissima* and *dichotoma*, *Saussurea deltoidea*, *Cyanotis barbata*, *Umbelliferæ*, *Drosera lunata*, *Lycopodium clavatum*, *Galium*, etc. Mosses and lichens also are frequently found on the ground, especially where the soil assumes more the character of a black turf.

These hill pastures are hardly more than the undergrowth of pine and hill forests, with or without a few pine or other trees scattered over them. They are always found on situations unfavourably exposed to prevailing winds.

11.—Riparian vegetation.

A vegetation springs up on the bed or along the edges of half dried up streams which is usually distinguished as riparian vegetation, and this is of two kinds as the streams flow over rocky or pebbly beds or through alluvium.

a The vegetation of the rocky restricted more to the upper parts of the strea rs that do not enter the alluvium possess solely ion. Accordingly as the course is through r through evergeen forests the change is marked presence of xerophilous or hygrophilous plants.

On such rocky or stony beds g ce: *Rungia pectinata, Cyclocodon truncatum* an hite-flowered *Lobelia* (L. *Wallichiana* especi e rocks) *Pentasacme caudatum, Canscora diffus nea, Lindenbergia urticæfolia* and *Philippinens flora* and *cordifolia* two or three species of *N* al species of *Elatostemma, Plectranthus, Polypo Gymnopteris, Adiantum lunulatum, Trichoma Hymenophyllum,* some species of *Eragrostis, lygonum, Asplenium esculentum, Thyssanolæna ylla,* etc.

Between the rocks, growing on t , many a shrub settles itself in spite of the t he rains. Such are *Salix tetrasperma, Sarcochl a, Cassia palmata, Ficus ischnopoda* and another lomonoya *riparia, Debregeasia velutina, Bohmer* nd a few others.

When the streams flow through e he rocks and boulders are usually covered by cr as *Marchantia, Metzgeria, Fissidens, Hypnu* ecies, between which grow several species of laginella *semicordata* and *tenella, Trichomanes,* c.

Certain trees, also, shew a partic for such hill streams, like *Eugenia macrocarpa, a, Cassia Timorensis, Bischoffia Javanica, Ery ma, Euphorbia antiquorum* and *nereifolia,* a w a, *Ficus glomerata* and *macrophylla, Dillenia In s, Cassia palmata, Calamus arborescens* and othe

A curious ochre-yellow *Alga (Le* is met with frequently in many localities of otruding from amongst soft sandstone or moist w e rocks, forming sometimes a soft jelly-like mas k which on microscopical examination is fo osed of very thin, fragile filaments, giving a pe ke structure to the slabby mass.

Other ochre or rust-coloured mat seen in and along the numerous trickling wells floating like an oily sheet on the surface of sta encrust-

ing the plants growing in the neighbourhood or depositing themselves on the ground. These substances, however, are possibly nothing but iron oxydes, sometimes transformed into what is called Rasenerz. Only Diatoms are found in such places and but rarely other Algæ.

b. The beds of streams when they enter the alluvium have usually a sandy or clayey soil and only the more rapid rivers carry down pebbles. It is on such pebbly or shingly beds that are often found, in the midst of alluvium, plants which are not discoverable elsewhere except in hilly tracts. Pebbly deposits may also be met with occasionally along the Irrawaddy as far south as Henzada but the localities have no vegetation on them. Where rocks pierce the alluvium in river-beds, of course, rock-plants make their appearance, as for instance at Shwe-doung Myoma, south of Prome, where *Homonoya riparia* is frequently found.

The fine, loose sand and clay, however, along the course of such rivers as the Irrawaddy, Tsit-toung, and other larger streams bears a vegetation of an agrarian character. Where flying sand is prevailing or forms extended sandbanks (and that is often the case) a grass makes its appearance before all others, and this is *Saccharum spontaneum*, a sand-binding but very troublesome grass, found everywhere over the whole of the Province and of India generally. It possesses the same land-forming qualities along river banks as the mangroves or other sand-binding plants along the sea shore and may be compared, in this respect, to the reeds of the Danube and other large rivers of Europe. Few plants associate with it and those chiefly towards the tidal zone where it is accompanied by such shrubs as *Tamarix*, *Fluggea*, *Desmodium*, etc.

It is especially along the edges of the rivers themselves, or along their escarpments over which numerous trickling springs are running down, that the true riparian vegetation is properly developed. The following are, probably, the most frequent riparian plants, growing on sandy or clayey soil: *Cleome icosandra*, *Polycarpum depressum*, *Bergia ammannioides*, *Ludwigia prostrata*, *Gymnopetalum integrifolium*, *Mollugo glinus* and *M. Spergula*, *Gnaphalium Indicum*, *multiceps* and *crispatulum*, *Ranunculus sceleratus*, *Veronica Beccabunga* with white flowers, *Rumex dentatus*, *Bonnaya veronicæfolia*, *Cynodon Dactylon* on drier stations, *Dentella repens*, *Portulaca oleracea*, *Mazus*, *Amarantus spinosus*, *Sphæranthus hirtus*, *Xanthium strumarium*, several species of *Blumea*, as *B. Wightiana*, *lacera*, etc., *Eclipta alba*,

Spilanthes acmella, Nasturtium, Ficus heterophylla especially along escarpments, *Alternanthera sessilis, Thespis divaricata, Hydrocotyle Asiatica, Commelyna communis, Aneilema nudiflorum,* and similar ones. Amongst the abovenamed a number of cultivated plants also settle down, such as *Nicotiana Tabacum, Fœniculum, Ricinus communis, Raphanus sativus, Physalis Peruviana, Datura alba, Gomphrena globosa,* etc.

Cryptogams are remarkably rare but along the escarpments of the large rivers, like the Irrawaddy, a purplish species of *Marchantia* or *Grimaldia* is as common as along the Bramhapootra in E. Bengal.

It is remarkable that the borders of certain sandbanks are, so to say, studded with rare plants coming from higher latitudes or regions. Such isolated banks are met with, often at great distances apart, and are at the same time, more than others, subject to be carried away by floods during the rainy season.

BB.—VEGETATION OF THE SWAMPS AND WATERS.

Most of the water-plants root in the ground and derive, therefore, their nourishment from the soil in which they grow. Comparatively few of these are suspended, either floating or submerged. Many are amphibious, *i. e.*, they grow both in water and on land, and consequently often change their habits.

12.—SWEET-WATER VEGETATION.

The vegetation of the fresh or sweet waters may be divided into the vegetation of:—

a.—swamps.
b.—lakes and other stagnant waters
c.—running waters, such as rivers, etc.

The firstnamed connect the land and water vegetation.

a. True swamps and morasses in India are only such as are inundated during the dry season, those that dry up are rather low, inundated lands which have already been treated of under 10. b. Lowland pastures. Sometimes *Phragmites Roxburghii* and another species form a sort of jungle in shallow swamps that are destitute, or nearly so, of other grasses. They more often, however, consist of low grasses and water-plants, almost identical with those of the low moist pastures. These are *Hymenachne interrupta* and *myurus, Paspalum scrobiculatum, Anosporum cephalotes, Cyperus pallidus* and other species, *Panicum crus galli* and *colonum, Leersia hexandra,* and sometimes also wild rice. *Ipomœa reptans* is almost everywhere a companion of the above grasses, along with several species of *Fimbristylis* and *Eleocharis, Ludwigia parviflora, Jussiœa repens* and *subfruticosa, Hygro-*

rhiza aristata, *Œnanthe stolonifera*, *Rungia repens*, *Marsilea erosa*, *Commelyna communis*, *Centrostachys aquatica*, *Sesbania paludosa*, *Æschynomene Indica*, *Neptunia oleracea*, *Sagittaria sagittifolia*, *Butomus lanceolatus*, *Monochoria hastata*, *Cyanotis axillaris*, *Floscopa paniculata*, *Lasia aculeata*, *Euhydra fluctuans*, *Eriocaulon*, *Hygrophila salicifolia* and *longifolia*, *Dysophylla verticillata*, several species of *Utricularia*, a small creeping *Hydrolea* and similar water plants.

Lower Algæ and Diatoms are chiefly found amongst the floating roots and branches of these water-plants and a few *Zygnemaceæ*, especially the common species of *Spirogyra*, cover the ground. Often enough, however, the water remains quite clear.

b. Mountain lakes are very rare in Burma but a few are to be found in the Martaban hills. Those in Pegu are mostly alluvial lakes, often of a very doubtful character. In the diluvial zone several lakes are met with of which, perhaps, the one near Rangoon is the largest. The lowland lakes are very numerous indeed and some of them are rather large, the greater part, however, form only small expanses, sometimes not larger than a middle sized tank.

If the water is muddy, as is often the case in the Irrawaddy alluvium, especially in the tracts of Savannah forests, little is seen of water-plants, and even Diatoms are very scarce. But if the water is of a clearer quality a profusion of water-plants, fixed as well as floating, inhabit the lake.

Attached to the ground are one or two species of *Nitella* in abundance ; also *Ceratophyllum tuberculatum*, *Myriophyllum*, *Nymphæa Lotus*, and sometimes *stellata*, *Nelmubo nucifera* locally, *Bhyxa*, *Villarsia cristata*, and *Indica*, *Aponogeton monostachyum*, *Najas minor*, *Hydrilla verticillata*, *Nechamandria alternifolia*, *Vallisneria spiralis*, *Ottelia alimoides*, *Sagittaria*, etc.

Of floating plants the following deserve special mention : *Pistia stratiotes*, *Salvinia cucullata* and *natans*, *Azolla pinnata*, *Lemna paucicostata*, *polyrrhiza* and *tenera*, *Wolfia arrhiza*, two or there species of *Riccia*, etc.

Algæ are plentiful in clear lakes, especially when they are of small size, floating as well as attached to the water-plants. Amongst the labyrinth of these plants numerous Diatoms can be collected and beautiful forms of *Desmidieæ*, of which especially *Closterium*, *Cosmarium*, *Pediastrum* and similar genera are very rich in species.

Such shallow lakes, when in sunny, open localities, are often covered by a green, and not seldom also by a brick-coloured, scum which, on microscopical examination, turns out not to be Algæ at all but animalculæ (chiefly *Euglena viridis* and *sanguinea*). They also often occupy the swamps, above referred to, and develope themselves there so prodigiously (especially the brick-coloured species) that they form sheets of coloured matter of several hundred square feet which entirely hide from view the water beneath and attract attention even from a distance of several miles.

c. The vegetation of running waters is so poor in Pegu, that not a single phanerogamic plant can be mentioned which might rightly be brought under this head. The cause of this deficiency is to be found partially in the fact that most of the streams dry up to such an extent that no water-plants can sustain themslves permanently, and also in that most of the supposed species which inhabit running rivers are nothing but elongated varieties of well known forms. Such elongation of water-plants takes place in Pegu, especially along the currents that traverse the swamps and inundated rice-fields, where we see many of the plants lengthened to an unusual extent, their foliage following the direction of the growth. Such elongated forms occur especially among *Alismaceæ*, *Eleocharis*, *Isolepis*, etc. The larger rivers of the plains may be destitute of them because the soft alluvium does not favour their growth. But, whatever may be the true cause, all phanerogamic plants are restricted to such parts of these rivers as form stagnant pools or water courses, such as are called on the continent, old waters. Of cryptogamic plants, however, Algæ are frequent enough, and two or three species of *Spirogyra*, *Oscillaria*, etc., often attach themselves to the rocky ground, elongating in consonance with the rapidity of the waters. Brown gelatinous patches of Diatoms, too, are frequently met on the ground of such running waters, with such Algæ, as *Anabœna*, *Staurospermum*, etc.

13.—Salt-water vegetation.

The phanerogamic vegetation is poorly represented in the brackish waters and becomes almost extinct in the sea where sea-weeds find their home.

a. The vegetation of tidal waters, whether running or stagnant, remains much the same ; the cause of this lies, no doubt, in the movements to which both are subjected by the influence of the tides. However in sheltered stagnant pools the vegetation is more crowded, while along the channels it is restricted to the

borders. Of phanerogams only such plants are found as grow in the ground. "I never met" writes Mr. Kurz "with a "freely floating phanerogam except where the water had be- "come so sweetened by the rains as to allow of a transition to "sweet-water vegetation. Besides the plants I alluded to, when "treating of the tidal forests and which I referred to as land- "vegetation, I can only sum up the following few plants which "occurred to me in truly brackish waters in the tidal zone of "Pegu, *viz.*, a *Nitella*, *Ceratophyllum* and, but very rarely, a "*Potamogeton*."

Algæ are plentiful, but are generally poor in species. Some are found chiefly on the roots and on the lower submerged part of stems of trees, as also on floating or submerged wood and branches, while others attach themselves to water-plants and riparian grasses. *Diatomaceæ*, *Zygnemaceæ* and similar lower Algæ are found also on the soft mud.

b. The vegetation of the sea in Pegu presents no phanerogams and, probably, the only pelagic phanerogam in Burma is a little plant *(Halophila Beccarii)* found growing submerged on sand in dense patches in a salt-water channel near the flag-staff at Akyab.

The amount of mud in the river water that is carried into the Gulf of Martaban is so enormous that for more than 30 miles from the shore of Pegu no truly marine vegetation can support itself, for the sea water is so sweetened and discoloured that it resembles more a tidal water. The number of sea-weeds is, therefore, small and restricted to the shores, where they grow analogically to those found in the tidal waters, and the most common forms are *Chthonoblastus*, *Polysiphonia*, and *Phycoseris*, *Catenella opuntia*, *Bostrychia*, *Caloglossa*, *Hypoglossum*, *Gongroceras*, *Vaucheria* and *Campsopogon*.

On the mud along the line of the ebb at Elephant Point and at other places south of Rangoon are seen larger or smaller brown or yellowish patches of a jelly-like matter, or of threads often two inches long. These consist chiefly of Diatoms such as *Amphitetras* or *Isthamia* and *Homœocladia*.

II.—Vegetation of cultivated, or lately cultivated, lands.

1.—Vegetation of agrarian lands.

The vegetation that springs up on agrarian lands while under cultivation varies sometimes with the crop that is grown on them, but this variation is reducible to causes affected by the amount of irrigation to which such lands are subjected, and it is natural that rice fields, etc., should produce, during inundation,

water and swamp-plants while in tobacco or other dry fields the usual garden weeds spring up.

a.—By the term lower agrarian lands is meant all such fields whether producing rice, tobacco, maize or other crops, as are formed on alluvial lands. Many of them are, during the rains, more or less inundated, especially the rice fields. The crops that are chiefly raised on them are the common water rice (*Oryza sativa*), *Phaseolus mungos*, *Crotalaria juncea*, *Cicer arietinum* and *Raphanus sativus*, along with all those plants mentioned below as growing on the upper agrarian lands, hill rice and mulberry excepted.

In the Prome district and also, but rarely, in the Irrawaddy zone are fields of *Melilotus leucanthus*, *Carthamus tinctorius* and *Indigofera tinctoria*. Besides these are frequently found in rice fields *Apium graveolens*, *Pachyrhizus angulatus*, *Cyamopsis psoralioides*, *Colocasia esculenta*, *Coriandrum sativum*, *Lablab vulgaris*, *Batatas edulis*, *Amarantus oleraceus*, *Allium porrum* and other species, *Lepidium sativum*, two varieties of sugar-cane, some times *Pisum sativum*, *Physalis Peruviana*, *Canavalia gladiata*, *Psophocarpus tetragonolobus* and possibly some more.

On inundated fields are, chiefly, the following plants, growing amongst the crops: *Fuirena ciliaris*, *Fimbristylis miliacea*, *Scirpus juncoides*, *Cyperus distans*, *Iria umbellatus*, *difformis*, *dilutus*, *compressus*, *pulvinatus*, *Haspan*, *pygmæus*, *Eragrostis verticillatus*, *cephalotes*, etc., *Courtoisia Kyllingioides*, *Leersia hexandra*, *Isolepis* two or three species, *Eriocaulon*, *Xyris*, *Ludwigia parviflora*, *Sphenoclea Pongatium*, *Dopatrium junceum* *Commelyna communis*, *Pontideria*, etc.

After harvest these fields usually become (at least in lower situations) peopled by numerous plants that supersede more and more the annuals of the rainy season, forming a kind of soft pasture until the hot season fairly sets in when they turn as dry and barren as those which are situated higher up. Grasses and sedges are then, here as everywhere, the predominant plants but are, however, like all other plants here, short lived, such as, for instance, the soft tender *Isachne*, often covering some fields almost exclusively, *Diplacrum caricinum*, *Fuirena ciliaris*, *Fimbristylis pallescens*, *miliacea*, *diphylla* and *ovalis*, *Kyllingia*, *Abildgaardia monostachya*, *Cyperus rotundus* and other species, *Elythrophorus articulatus*, *Dactyloctenium Ægyptiacum*, *Eleusine Indica*, three species of *Xyris*, *Lobelia trigona*, several species of *Limnophila* and others.

The fields on lands situated higher up soon parch up and

become cracked in all directions with the increasing dryness and heat of the hot season. Other plants then make their appearance, of which the following are the chief: *Coldenia procumbems*, *Vandellia crustacea*, *Polygonum elegans*, *Crozophora plicata*, *Dentella repens* in sheltered fissures, *Scoparia dulcis*, *Lippia nudiflora* and a few scattered grasses like *Dactyloctenium Chrysopogon aciculatus*, *Andropogon pertusum*, *Cynodon*, etc., which during this period give a scanty pasturage for cattle.

In the dry Prome zone not a few other plants appear together with the above, such as *Monenteles spicatus*, *Sphæranthus amarantoides*, *Psoralea corylifolia*, etc.

b.—The upper agrarian lands are known generally as "*toungya.*" The plants that are cultivated are various but hill rice is the principal crop. Besides these "rice *toungya*" others are prepared in which are a number of plants useful for the household. These are rarely planted separately but are curiously mixed, although not without a certain degree of order. These are *Lagenaria vulgaris*, *Luffa acutangula*, *Benincasa cerifera*, *Momordica charantia*, *M. dioica*, *M. Cochinchinensis*, *Cucumis sativus*, *Cucumis melo*, *Citrullus vulgaris*, *Cucurbita moschata* seldom, *Carum Roxburghianum*, *Peucedanum sowa*, *Capsicum minimum*, *Morus Indica*, *Andropogon sorghum*, *Nicotiana Tabacum*, *Zea mays*, *Solanum melongena*, *Coix lacryma*, *Sesamum Indicum*, *Lycopersicum esculentum*, *Datura alba*, *Chavica Betel*, *Batatas edulis*, *Arachis hypogæa*, *Cajanus Indicus*, *Ricinus communis*, *Carica papaya*, *Trichosanthes anguina*, *T. cucumerina*, *Dolichos Lablab*, *Hibiscus Surattensis*, *H. Sabdariffa*, *H. Abelmoschus*, *H. esculentus*, *Gossypium herbaceum*, *Brassica juncea*, *Lepidium sativum*, plantains, divers varieties of *Dioscorea*, *Eleusine Coracana*, *Setaria Italica*, sugarcane, *Solanum ferox* and *S. trongum*, *Pachyrhizus angulatus* and similar plants.

The Kareng usually plant mulberry with *Solanum melongena*, *Hibiscus*, *Andropogon sorghum*, *Nicotiana Tabacum*, *Sesamum Indicum* and such like together in one field, or plant a little of everything on smaller hill fields.

Amongst these crops are seen coming up *Cleome icosandra*, *Gynandropsis pentaphylla*, *Portulaca oleracea*, *Triumfetta angulata*, *Corchorus acutangulus* and *capsularis*, *Oxalis sensitiva* and *corniculata*, *Ammannia pentandra*, *peploides* and *baccifera*, *Thladiantha dubia*, *Hemiadelphis polysperma*, *Gnaphalium multiceps*, *Solanum nigrum*, *Celosia cristata*, *Ageratum conyzoides*, *Solanum torvum*, *Indicum*, and *verbascifolium*, *Achyranthes aspera*, *Kyllingia*, *Blumea*

Wightiana, *runcinata*, *pterodonta* and *aurita*, *Sida acuta* and *rhombifolia*, *Buddleia neemda*, *Vernonia cinerea*, *Amaranthus sanguineus* and *spinosus*, *Lindenbergia macrostachya*, *Ipomœa vitifolia*, *Eleusine Indica*, *Nelsonia origanifolia*, *Gossypium herbaceum*, *Desmodium triquetrum*, *Strobilanthes auriculatus* and *scaber*, *Ardisia Wallichiana*, *Spilanthes acmella* and *paniculata*, *Cylista scariosa*, *Argyreia*, *Thunbergia laurifolia*, *Luffa cylindrica*, *Rungia pectinata*, *Strobilanthes glaucescens*, coarse *Cyperi*, *Onychium auratum*, *Pteris longifolia* and *Cretica*, *Ficus heteropylla* and similar plants.

At higher elevations in the Kareng hills *Strobilanthes flaccidus* is often seen cultivated for its dye. There appear also many plants of higher elevations in these hill *toungya* which are wanting on the Roma, such as *Sonchus arvensis*, *Younqia lyrata*, *Scirpus mucronatus*, *Eleocharis tetraquetra*, *Clerodendron infortunatum*, *Rubus Moluccanus* and *rosæfolius*, *Conyza absinthifolia*, *Alectra Indica*, *Gnaphalium hypoleucum* and numerous others.

The trees that have been felled and burnt previous to the formation of the *toungya* are, usually, not completely destroyed but many of the logs, seriously damaged and scorched by fire, are scattered on the ground. The stumps of the felled trees, also, are seen sticking out everywhere and often throw out numerous shoots that grow up again into trees.

After the harvest has been brought in the *toungya* are left to themselves for the next eight to twelve years, by which time they become, as a rule, converted again into young forests. These are then considered by the Kareng to have become "strong" enough to yield a sufficient amount of alkalies, etc. for another routine of hill rice culture. They are seldom kept under cultivation for a second year and if they are no rice is cultivated but cotton, mulberry and such like, along with the usual culinary vegetables.

After the *toungya* are completely abandoned they are called *toungya* hpoontso, or briefly hpoontso, "worn out *toungya*." The vegetation in the next season is, usually, not much changed. The crops that stood on them have of course disappeared but stragglers are still plentiful and the usual weeds of cultivation get the supremacy. The third year, however, the scene changes altogether; the whole hpoontso becomes covered by certain weeds that have overcome the others, such as *Conyza balsamifera*, *Blumea lacera*, *B. runcinata*, *Conyza viscosula*, *Solanum torvum*, *S. verbascifolium*, *Sida*, *Vernonia cinerea*, *Achyranthes aspera*, *Triumfetta angulata*, *Ageratum conyzoides*, *Triumfetta annua*, *Lygodium scandens*, *Pæderia*

tomentosa, *Buddleia neemda*, *Flüggea*, *Urena lobata*, *Centotheca*, etc. Such is the case especially in the level tracts but in hilly parts coarse grasses spring up which supersede all other herbaceous growth, and these are chiefly *Thyssanolæna acarifera*, *Saccharum spontaneum*, *Androscepia gigantea* and *Coix heteroclita*. Bamboos appear only when in the surrounding forest tracts the bamboos flower and fruit at the time when such *toungya* become deserted.

The grasses above named rapidly expel all the weak weeds and only shrubs and seedlings of the more frequent trees can overtop these powerful intruders until they themselves have grown up high enough to check the further growth of coarse grasses by their own shade.

The trees that seem most frequently to come up on deserted *toungya* are all light-loving and are *Anogeissus acuminatus*, *Lagerstrœmia macrocarpa* and *tomentosa*, *Premna pyramidata*, *Ficus hispida*, *Nauclea sp.*, *Dalbergia purpurea*, *Nauclea Brunonis*, *Spondias pinnata*, *Ficus cuniata*, *Duabanga grandiflora*, *Nauclea sericea*, *Spathodea*, *Bombax*, and such like. In the Kareng hills many others appear, like *Sponia velutina*, *Schima*, *Hibiscus vulpinus*, *Croton oblongifolium* and *Lantana arborea*, while in higher elevations, above 3,000 feet, numerous trees from the drier hill forests appear, amongst which, especially, *Eurya*, *Ficus hirta*, *Nelitris paniculata* and *Ternstrœmia Japonica*, are most abundantly met with, together with such undergrowth as *Pteris aquilina*, *Androscepia*, *Clerodendron infortunatum*, *Jasminum linearifolium*, *Hedyotis scandens*, *Asparagus curillus*, etc.

Any tree from the surrounding forests can spring up, either singly or in numbers, and those that grow best are always such as probably grew before the formation of the *toungya*. Light-loving species are always such as appear first, while the feeble evergreen trees, as a rule, grow up only after those lofty leaf-shedding trees of the evergreen forests have attained a height sufficient for their shelter. At elevations above 3,000 feet no more leaf-shedding forests establish themselves on account of the increased moisture of the atmosphere. It may, therefore, safely be assumed that hpoontso, as a rule, revert into forests either identical with, or very similar to, the forests that existed on them before cultivation commenced.

2.—Village Vegetation.

a.—The gardens of the Burmans rarely deserve the name and are best compared with kitchen-gardens wherein vegetables are grown along with a few favourite flower or medicinal plants. All the plants that are found in *toungya* are represented here.

In the Rangoon district are extensive pine-apple gardens, the fruit raised chiefly in shady orchards of Jack trees.

In private gardens Burmans usually plant a few of their favourite plants and flowers in a single row, or in a few rows, before their houses, such as, chiefly, *Ocymum sanctum, Elsholtzia blanda, Celosia cristata,* a yellow and a purple variety, *Cassia alata,* sometimes *Acorus Calamus, Canna Indica, Pardanthus Chinensis, Plumbago Zeylanica* and *P. rosea, Gendarussa vulgaris, Vinca rosea, Gomphrena globosa, Mirabilis Jalapa,* diverse varieties, *Quamoclit pinnatum, Datura alba* and *tatula, Passiflora, Clitoria ternatea, Impatiens Balsamina, Bryophyllum pinnatum, Zinnia, Graptophyllum pictum, Pyrethrum Indicum, Tagetes, Coreopsis* and others. Of shrubs and little trees are frequently *Nyctanthes arbor tristis, Hibiscus rosa Sinensis, Lagerstrœmia Indica, Quisqualis Indica, Rosa centifolia, Calotropsis gigantea, Morinda citrifolia, Allamanda cathartica, Calpicarpum Roxburghii, Cassia glauca, Cassia alata, Vitex trifolia, Ixora Bandhuca, Hamelia, Nerium odorum, Pandanus odoratissimus* and some others.

The Kareng, too, are fond of certain flowers and in most of the *toungya,* often situated in the remotest out of the way corners, are seen especially *Celosia cristata, Gomphrena, Tagetes, Plumbago,* etc.

b.—The principal trees rarely missed in larger Burmese villages are mango, tamarind, *Moringa pterygosperma, Carica papaya, Citrus decumana* and the sweet and acid limes, *Sesbania grandiflora* and *S. Ægyptiaca, Psidium Guava,* diverse species of bamboos varying according to the zone in which the village is situated, *Mesua ferrea, Sandoricum Indicum, Artocarpus integrifolia, Ficus cordifolia, Pithecolobium bigeminum, Corypha umbraculifera, Cocos nucifera, Borassus flabelliformis*: the following also are frequently cultivated, viz.—*Phyllanthus distichus, Achras sapota, Averrhoa carambola, Cassia florida, Ancacrdium occidentale, Mimusops Elengi, Plumieria acuminata, Areca catechu, Bixa Orellana, Ægle marmelos, Croton oblongifolium, Dillenea Indica, Melia azadirachta, Michelia champaca, Anona squamosa, Ochrocarpus Siamensis, Baccaurea sapida, Citrus hystrix, C. medica, Feronia elephantum* locally, *Zizyphus jujuba, Acacia Farnesiana, Lagerstrœmia flos reginæ, Bouea oppositifolia, Spondias pinnata-Pterocarpus Indicus, Bauhinia purpurea, Thevetia nereifolia, Artocarpus Lacoocha, Nephelium hypoleucum, Eugenia Jambos* and *aquea* and *Calophyllum inophyllum.*

Such are the trees principally seen in villages in the lower

parts of the country but towards the north many of these disappear altogether and others replace them, such as *Parkinsonia aculeata*, *Punica granatum*, *Melia azedarach*, etc.

All the trees named grow quite wild and without any order, except when they are planted around the numerous monasteries; in this case some sort of arrangement can be detected.

Several of the fruit trees are cultivated in greater numbers so as to form orchards, and there can occasionally be seen orchards of Jack, Lime or Papaya trees. The plantains, also, should be reckoned here as they may fairly be said to be the most extensively cultivated of all fruits.

In the Prome district, where all vegetation is regulated by the presence of lime and a hot and dry climate, extensive orchards of custard-apples cover a great part of the low hills around Prome itself. The *Ægle marmelos*, also, is found here in greater numbers than anywhere else and the *Borassus flabelliformis* is so abundant as to form the principal feature in the landscape.

On the Martaban hills, east of Toung-ngoo, plantations of *Areca catechu* are very frequent along small streams. The Kareng understand well how to irrigate these plantations by draining the waters of these streamlets so that they form a whole network of shallow running rivulets by means of which, with lowered temperature, the evaporation is increased so much that at elevations far below 1000 feet a number of high-level plants spring up like weeds. Such are *Bidens pilosa*, *Drymaria cordifolia*, *Siegesbeckia orientalis* and some others.

For hedges are especially used *Pedilanthus tithymaloides*, *Opuntia Dillenii*, *Croton Tiglium*, *Jatropha Curcas*, *Euphorbia antiquorum*, *E. tirucalli* *E. nereifolia*, *Cereus*, bamboos, several species of *Cæsalpinia*, etc.

Besides many of the ornamental shrubs already mentioned as occurring in villages are others which are suffered to grow under the shade of the village trees, such as *Croton Tiglium*, *Ricinus communis*, *Manihot utilissima*, *Jatropha curcas* and sometimes *glandulifera*, *Copiæum variegatum*, *Panax cochleatum*, *Poinsettia pulcherrima*, *Pedilanthus tithymaloides*, *Cereus grandis*, two or three species of arboreous *Euphorbiæ*, *Glycosmis pentaphylla*, *Jasminum sambac*, etc.

Weeds and weedy-looking plants spring up everywhere; several are of the sort termed ammoniacal; *Colocasiæ* are seen in abundance, cultivated as well as wild, and amongst other plants *Cleome icosandra*, *Gynandropsis pentaphylla*, *Portulaca oleracea*, *Tephrosia purpurea*, *Oxalis corniculata*, *Ocymum*, *Moschosma*

polystachya, *Corchorus acutangulus*, *Cassia sophera* and *Absus*, *Scoparia dulcis*, *Bryophyllum pinnatum*, *Ammannia baccifera*, *Cyamopsis pubescens*, *Spilanthes acmella* and *paniculata*, *Eclipta*, *Datura*, *Solanum nigrum*, *Xanthium strumarium*, *Ageratum*, *Urena lobata*, *Triumfetta angulata*, *Sida rhombifolia*, *Vernonia cinerea*, *Solanum torvum*, *Eleusine Indica*, *Achyranthes aspera* together with herbaceous twiners, as *Luffa cylindrica*, *Zehneria umbellata*, *Ipomœa*, *Basella alba*, etc.

Cucurbitaceous plants are grown around and before the houses on bamboo trailings or other supports, offering a friendly sight during the hottest part of the year when, with the exception of tamarind and mango, all trees here have shed their leaves.

The vegetation that grows on waste places, along road sides and in rubbishy places, such as are called by botanists *ruderata*, as also the plants that grow on old brick walls or on ruined pagodas, are often very interesting, although the greater part are usually weeds of general distribution.

On waste places and along road sides are seen, chiefly, *Leonotis nepetæfolia* locally, *Jatropha glandulifera*, *Ocymum*, *Ricinus communis*, *Tephrosia purpurea*, several species of *Blumea*, such as *B. Wightiana* and *lacera*, *Phaylopsis*, *Triumfetta angulata*, *Spilanthes acmella* and *paniculata*, *Vernonia cinerea*, *Cyamopsis pubescens*, *Chrysopogon aciculatus*, *Eleusine Indica*, *Zoysia pungens*, *Sidæ*, *Sporobolus* and numerous others of a similar stamp.

In rubbishy places, and more especially on old ruined pagodas, are found a number of curious plants which are ordinarily collected on diluvial and other rocky formations, and they attract especial attention here as they are found growing in the midst of alluvium and where, for 30 to 40 miles around, no vestige of them can be seen except on old brick-work in villages, a situation identical with the above only differing sometimes in the amount of shade and moisture.

The following are the plants more generally met with in such localities, *Blumea runcinata* and *flava*, *Knoxia lasiocarpa*, *Triumfetta angulata*, *Sida acuta* and *rhombifolia*, *Vernonia cinerea*, *Lindenbergia urticæfolia* and *macrostachya*, *Scoparia dulcis*, *Achyranthes aspera*, *Bœrhavia repanda*, *Phyllanthus niruri* and *urinaria*, *Euphorbia pilulifera*, *Spermacoce*, *Batratherum latifolium*, *Apocopis*, *Sonerila tenera*, *Selaginella tenera* and *Junghuhnii*, *Pogonatherum crinitum*, *Cheilanthes argentea*, *Adiantum lunulatum* and *caudatum*, *Osbeckia chinensis*, *Crotalaria acicularis*, *Amarantus sanguineus*, *Celosia cristata* (the purple variety chiefly) *Schizachyrium brevifolium*, *Eragrostis*

amabilis, Brownei, Vandellia crustacea, Canscora diffusa, Sida cordifolia, Ageratum conyzoides, sometimes *Gomphrena globosa, Ipomœa vitifolia* and other species, *Lepidagathis fasciculata* and *recurva, Nelsonia origanifolia, Emilia sonchifolia, Leucas, Rungia pectinata*, etc. Some *Algæ* like *Scytonima cinerea*, along with acrocarpous mosses (chiefly *Pottia* and *Portula*) are also frequently seen along the shady sides.

As in other waste places so also here coarse grasses like *Saccharum spontaneum Polytoca heteroclita* and *Thyssanolæna acarifera* spring up especially along the sunny sides, while trees also (chiefly fig trees) soon settle themselves on the ruins and grow up undisturbed.

3.—Naturalized plants.

A large number of exotic ornamental plants are in cultivation and are met with in many Burman gardens. Even Kareng have American flower-plants in their remote and desolated *toungya*. Ample facilities are, therefore, given to these plants to disseminate and spread but in spite of that the number of really established exotics is exceedingly small in comparison with those in Bengal and other countries in India and these few are restricted to the cultivated plains or to waste places in and around villages, while in the *toungya* of the Kareng those that still shew themselves in the first year of the abandonment disappear as quickly and completely as all other plants of an agrarian or savannah character. The cause of this appears to be that the woody terrain and savannahs are not favourable to the growth of most of these ornamental plants, even small trees, like *Bixa, Carica* and *Ricinus*, settle themselves only along the banks of streams and there only scantily enough.

The half indigenous plants are :—*Adenolepis* plentiful *Tridax procumbens* locally, *Angelonia* locally, *Gomphrena globosa, Ricinus communis, Bixa Orellana* seldom, *Asclepias curassavica* passim and *Impatiens Balsamina*. These are all that can be considered as established although, strictly speaking, only the first named enters the flora as an element. There are, besides, others of the more cultivated forms, which spring up occasionally, especially on waste places in and near villages, along the courses of streams and rivers, and also on neglected *toungya* and in gardens.

Their existence, however, is too ephemeral to admit of their being fairly grouped with established species. They appear and disappear like other weeds according as a locality is subjected to changes arising from thinning or overcrowding, and must be looked upon as mere escapes from cultivation or gardens.

Forest Administration and Forest Products.

Administration.

For many years before the cession of Arakan and Tenasserim in 1826 Burma had been a great timber exporting country. Much of this timber was grown within the limits of the Burman dominions and some beyond these to the eastward, in the Zeng-mai Province of Siam. Almost immediately after the close of the first Anglo-Burmese war the forests of Tenasserim, or rather of that portion which now constitutes the south-eastern part of the Amherst district and the Tavoy and Mergui districts, then called the "Tenasserim Province", were examined by Dr. Wallich and on the receipt of his report the Government directed that they should be reserved as State property and that an attempt should be made to work the Attaran forests on Government account. Maulmain was then little else than a Cantonment and a fishing village and the timber had, consequently, to be sent for sale to Calcutta, where the prices realized were so unsatisfactory that on the 1st of May 1829 the Commissioner, with the sanction of the Governor-General, threw open the Attaran teak forests to private enterprize. The State, however, had no intention of totally abandoning its rights and when thus discontinuing to work on its own account it required that private individuals who might wish to bring timber from the forests should obtain licenses from its officers, revocable at will, restricting the minimum girth of trees to be felled to four feet and requiring the payment of an *ad valorem* duty of 15 per cent. The next change was in 1833 when the entertainment of a small native establishment for the protection of the forests was sanctioned; this was placed under the control of the Civil authorities. In 1837-38 Dr. Helfer reported that the license system instituted in 1829 was leading to the extermination of the forests and the result of his report was that in 1841, or three years later, the Executive Engineer of Maulmain, Captain Tremenheere, was appointed Superintendent of Forests and new rules were sanctioned: these provided for the resumption of licenses, the issue of 20 years leases and the increase of the standard minimum girth of timber to be killed to six feet and made it a condition that five young trees should be planted for every tree killed; at the same time a proviso was inserted to the effect that the license holders should not be disturbed except on very strong grounds. From this time onwards the forest rules have been undergoing continual alterations. In 1842 a new set were approved by the Government of India but disapproved of by the Court of Directors of the East India Company and in the same year the duty on foreign timber brought down to Maulmain was

fixed at Rs. 15 *ad valorem*, that is at the same rate as that levied on British grown logs. In 1845 the rate for both classes was changed to Rs. 25, calculated at a valuation of Rupees 24 per ton, and was to be levied in cash and not in kind as hitherto. In 1848 a further change in the rate of duty was made and it was fixed at four Rupees for each log of five feet in girth brought down the Attaran river and Rs. 2-12-0 for each brought down other rivers.

The second Anglo-Burmese war broke out in 1852 and ended by the annexation of the lower portions of the valleys of the Irrawaddy and of the Tsit-toung and of the country between the Tsit-toung and the Salween. From the Tsit-toung eastwards the country was called the Martaban Province and was joined to Tenasserim, and from the Tsit-toung westwards, as far as the Arakan hills, was called the Province of Pegu and placed immediately under the Government of India. The first steps taken in Pegu were entirely of a protective nature. Almost immediately after the annexation all the forests were declared to be Government property and all timber removed after the 30th May 1853 from the Hlaing, Hpoung-gyee and Hpoung-leng forests, that is those lying on the southern and lower western and eastern slopes of the Pegu Roma mountains, was subjected to confiscation. On the 3rd and 4th May 1854 supplementary notifications were issued calling upon owners of timber to register it, prohibiting the felling of teak without a license and calling for tenders for the purchase and bringing to Rangoon of all seasoned teak, standing and felled, in the Thoon-tshay, Ook-kan, Hpoung-leng and Pegu forests at eight Rupees per log of five feet in girth and upwards and four Rupees per log of smaller timber, both inclusive of all duty.

These were followed by another notification, dated 6th July 1854, laying down rules for the collection of revenue on teak timber not reported and registered under previous orders, the rates fixed being

	Rs.	A.	P.
On all logs above five feet in girth'... ...	4	0	0
Crooks, each from one anna to	1	2	0
Foreign timber, valued at Rs. 14 per ton...	15	0	0

It was found that the notification of 1853 had the practical effect of confiscating timber which had been felled before the annexation which, under the regulations of the Burmese Government then in force, was private property. On the 21st November 1854, therefore, an order was issued sanctioning the removal from the forests in the Irrawaddy valley and in that

portion of Pegu which was situated in the valley of the Tsit-toung of all timber which had been felled prior to the 20th December 1852, the date of the annexation, but the permission so granted did not extend beyond the 1st January 1856. On the 21st October 1856 new rules were published and the Pegu forests were then first brought under regular conservancy and the destruction of the teak forests to some extent prevented. The timber was extracted by private persons who bought the right to remove all girdled or dead timber, standing or felled, which they found within the limits of the tract they leased, but until the rent was paid the timber remained the property of the State. The lessee was not allowed to girdle trees. The leases ran for a fixed term, in ordinary cases not longer than three years, and the property in all timber which remained in the forest after the expiry of the lease, felled or not and whether the full rent was paid or not, reverted to the State.

These rules were revised in 1859 and on the 3rd January 1862 they were extended to the Arakan and Tenasserim and Martaban Provinces.

On the 31st January 1862 the Arakan, Pegu, Tenasserim and Martaban Provinces, were united into a Chief Commissionership divided into the Arakan, Pegu and Tenasserim divisions, and in the following year the forests in Tenasserim, till then under the Civil authorities, were transferred to the Forest Department.

In 1865 a Forest Act was passed by the Governor-General in Council and new and more stringent rules were drawn up under it and promulgated. These rules, which are still in force, are specifically declared to be for the administration of Government Forests in British Burma and for the management of foreign and drift timber. The boundaries of the Government Forests are given as:—

First. Forests between the Irrawaddy and the range of hills east of the Tsit-toung.

These comprise the forests on the hills and in the valleys of the Pegu Roma range and those on the hills east of the Tsit-toung in the north and are bounded on the

West.—By a line passing through Mye-dai; through the point of junction of the Bhwot-lay and Pa-de and that of the North and Middle Na-weng; thence to the head-waters of the Myit-ma-kha, east of Prome, and along the Myit-ma-kha (called the Hlaing lower down) to the mouth of the Myoung-ta-nga.

South.—By a line drawn from the mouth of the Myoung-ta-nga eastward to the town of Pegu.

East.—By a line drawn from Pegu through the villages of Bhaw-nee and Ka-gnyeng-oot-hto to the junction of the Won and the Kwon; thence across the Tsit-toung through the town of Kyouk-gyee to the crest of the watershed between the Tsit-toung and the Salween and along the crest northward to the frontier line.

These forests thus included the whole of the Prome* and Henzada† districts east of the Myit-ma-kha, that portion of the Rangoon district north of the Myoung-ta-nga and east of the Hlaing as far as the foot of the eastern slopes of the Pegu Roma, the northern portion of the Shwe-gyeng district. (formerly a portion of the Martaban Province and still in the Tenasserim division) and the whole of the Toung-ngoo district.

Second. The forests in Tenasserim

1. The Bhee-leng forests on both banks of the Bhee-leng north of the village of Pa-wa-ta.
2. The Rwon-za-leng forests on both the banks of the Rwon-za-leng north of the village of Ka-daing-tee.
3. The Doon-tha-mie forests on both banks of the Doon-tha-mie above its junction with the Salween ‡
4. The Thoung-yeng forests between the hills bounding the Thoung-yeng valley in the south-west *(the Dawna range)* and the Siamese boundary line *(the Thoung-yeng)*.
5. The Attaran forests above *(south of)* the junction of the Za-mee and Weng-raw.§

Within these limits unsanctioned injuring in any way of teak trees is absolutely forbidden, whether by girdling, felling or lopping them or by careless dragging of other timber. No Toungya or hill gardens can be made without permission on any spot where there are teak trees, and any teak logs lying on a spot selected for a hill garden are to be protected from the fire by which the site is cleared. All other trees than teak were declared free. In order to facilitate the extraction of the timber from the forests a selection of rivers and streams was made which were to be kept free from all artificial obstructions whether for fisheries, irrigation or other purposes: special rules were laid down for the establishment

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* Prome then included the present Thayet district.

† Then called Myanoung.

‡ The Doon-tha-mie does not fall into the Salween but unites with the Kyouk-tsa-rit to form the Bheng-laing which does, and a more accurate description would have been—"on "both banks of the Doon-tha-mie and Bheng-laing above the junction of the latter with the "Salween" and in practice this has been adopted as the real meaning.

§ These unite to form the Attaran and these forests have in practice been held to include all the country in the valleys of these two streams as far as the Siamese frontier.

and regulation of timber revenue stations, to which all teak timber was to be brought to be passed by the Forest Officer in charge, and all drift and unclaimed teak was declared to be the property of the State subject to owners proving their rights, for the ascertaining of which special regulations were framed. The rules also provided for the use of marking hammers by lessees of forests or purchasers of timber and for the disposal of all State timber, the latter being;—(*a*) by public auction; (*b*) by private sale on indent approved by a forest officer at rates not below the average realized at public sales during the preceding year; (*c*) by sale of the seasoned timber standing or lying in a specified forest tract, the timber remaining the property of the State, whether extracted or not, until the full amount of the purchase money was adjusted (the lease held for a fixed period, ordinarily not to exceed three years, and all timber not brought out, whether the purchase money was paid or not, reverting to the State); (*d*) by grant gratuitously for the erection of buildings for the common benefit of the public such as Christian churches, Booddhist monasteries, schools, public rest houses, bridges, etc.

The rules thus provided for two systems of working the forests, in both the girdling being done by Government officers and destructive and exhaustive working of any tract prevented, one in which the state brought out the timber and disposed of it, the other in which private persons bought the girdled timber in a forest and brought out all or as much as they could.

It was not intended to prohibit all cultivation within the extensive area comprised within the limits given above and accordingly rules were made by which certain tracts should be specially reserved and demarcated as Government teak forests, and within these unauthorized felling, cutting, marking, killing or injuring of trees of *all* kinds, of shrubs or bamboos, the collection of leaves, wood oil, resin or other forest produce, and any interference with the soil or its produce without permission is forbidden; even the use of existing roads can, if necessary, be prohibited.

Owing to various circumstances, more especially to the arrangements which had been made in previous years, it was found impossible to enforce the rules throughout the forests in Tenasserim but this was done as soon as it was feasible.

At the same time the departmental rules with regard to girdling were revised and it was provided that in all the reserved forests one quarter of the available first class trees (six feet in girth and above) should be girdled or killed annually, it being estimated that a period of 24 years sufficed for second class trees

(four feet six inches in girth) to attain first class size. Between 1865 and 1868 296,040 trees were girdled or an average of 24,670 trees a year; during this period 297,297 logs were brought down from the forests.

In 1866 orders were received for the issue of permits of thirty years' duration to all who held and could satisfactorily establish their claims to licenses previously granted in the Attaran forests, but the license holders were also offered the option of buying their respective forest tracts as wholes at Rupees 2-8-0 per acre, at the same time, however, a condition was added that no tree under seven feet six inches in girth at six feet from the ground should be felled and duty was to be paid at Maulmain; at the end of 30 years the forests were to revert to Government. These rules only affected the Attaran forests and a small forest called the Pandaw in the Tenasserim division.

In 1868 it was discovered that in as much as Act VII of 1865 did not relate to foreign timber the rules, in so far as they related to that timber, were illegal and in consequence a short Act (V of 1869) was passed by the Governor General in Council legalizing them ex post facto and granting an indemnity for everything done under them.

In 1868-69 a revised working plan was introduced experimentally, to last five years, by which the number of trees to be girdled was reduced and fixed at 11,600 and the artificial cultivation with teak of 350 acres annually was insisted on. From this period dates the gradual progress of real forest conservancy.

At first the lease system was generally adopted but this was gradually changed and the whole of the forests have come under the entire control of Government officers, the last lease having expired in 1877. Since 1874 operations have been almost limited to extraction of seasoned timber and no trees have been girdled except where the probable reproduction is such as to warrant their removal.

Until 1873 no trees were protected except teak, but in that year Thit-kha (*Cedreela toona*) and Thit-ka-do (*Pentace Burmanica*) were declared to be reserved in all Government forests.

In 1876 additional rules were promulgated reserving, subject to certain restrictions which will be noted further on, twelve other kinds, *viz.*, Pyeng-ga-do (*Xylia dolabriformis*), Pyeng-ma (*Lagerstœmia reginæ*), Eng (*Dipterocarpus tuberculatus*), Eng-gyeng (*Pentacme Siamensis*), Thit-ya (*Shorea obtusa*), Sha (*Acacia catechu*), Anan (*Fagræa fragrans*), Theng-gan (*Hopea odorata*), Pa-douk (*Pterocarpus Indicus*), Thit-tsee (*Melanorrhœa usitatis-*

sima), Kook-ko (*Albizzia lebbek*) and Ka-gnyeng (*Dipterocarpus alatus*); adding considerably to the area of the Government forests, providing a new procedure for making reserves in these newly formed forests and regulating the issue of permits.

Later, in 1877, Pa-douk was removed from the list and it was classed with Teak, Thit-kha and Thit-ka-do as absolutely reserved.

The new forests and their boundaries are :—

PEGU DIVISION.—Forests west of the Irrawaddy:

North.—The Frontier line.

East.—The Irrawaddy from the frontier southwards to the mouth of the Nga-won or Bassein and thence that river to the sea.

South and West.—The sea coast to the mouth of the Kyien-ta-lee, thence the Kyien-ta-lee to its source and thence the Arakan Roma mountains to the frontier.

TENASSERIM DIVISION.

A.

West.—A line drawn from the village of Bhaw-nee to Ka-gnyeng-oot-hto and thence to the junction of the Won and Kwon streams.

North.—A line drawn from the junction of the Won and Kwon streams across the Tsit-toung to Kyouk-gyee and on, eastward, to the watershed between the Tsit-toung and the Salween rivers, thence, northward, to the frontier and along the frontier, eastward, to the Salween.

East.—The Salween from the frontier to the mouth of the Thoung-yeng.

South.—A line drawn eastwards from the mouth of the Thoung-yeng to the watershed between the Salween and the Tsit-toung.

B.

West.—The Salween from the mouth of the Thoung-yeng to the mouth of the Reng-paing, thence a line drawn south-south-west to Wee-nwai on the Hlaing-bhwai, the Hlaing-bhwai to its junction with the Houng-tha-raw, the Houng-tha-raw from its mouth to a point struck by a line drawn due east from the mouth of the Nat-khyoung and thence the eastern watershed of the Atta-ran to the Siamese frontier.

South.—The Siamese frontier line.

East and North —The Daw-na range.

C.

The tract of country drained by the Wa-kha-roo, the Ka-

roop-pee, the An-heen, the La-maing and the Re and their tributaries.*

D.

The tracts of country drained by the Hien-tsai, the Tra above Za-dee, the Hpa-wa, the Tavoy above Khyoung-tsouk, the Great and the Little Tenasserim north-east and south of their junction, the Le-gnya above the village of Le-gnya, the Pak-chan above Ma-lee-won and their tributaries. The forests on the Moscos, Tavoy Island, King's Island and the islands south of King's Island including S. Matthew's and S. Luke's.†

The rules authorize the issue of three classes of permits. (*a*) *free trading*;—for the extraction of all timber already felled; these expired on the 1st January 1877: (*b*) *trading*;—for the extraction of timber for sale: (*c*) *free*;—for the extraction of timber for *bona fide* agricultural and domestic purposes granted to residents in the neighbourhood of the forests. Nothing, however, in these rules referred to trees over 12 feet in girth six feet from the ground, nor to trees felled *bona fide* for the purpose of cultivation.

The Government forests are at present divided into two circles, the Pegu and the Tenasserim, each under the control of a Conservator.

The Pegu circle is divided into six administrative charges or divisions, each under a Deputy or an Assistant Conservator of Forests aided by native subordinates.

I. The Rangoon division, the head-quarters of which are at Rangoon, comprises the southernmost forests in the Pegu circle, *viz.*, the Hlaing, situated on the south-eastern tributaries of the Hlaing river; those in the Hpoung-leng valley; and those on the Pegu river. The chief teak localities in this division are on the Pegu river and its tributaries and extend from above the Kyouk-ta-ga down to the Lek-pan stream; there are also smaller teak localities on the head-waters of the Ook-kan, Ma-ga-ree and Poo-zwon-doung streams. The area of the teak-producing localities here may be estimated at 300 square miles, and the area of reserves at about 131 square miles.

II. The Tha-ra-wa-dee division is comprehended between the Irrawaddy river on the west, the Pegu Roma hills on the

* The boundaries are not given in the notification but they are in fact:—*East*, the Toung-gnyo hills; *south*, the southern limit of the Amherst district; *west*, the seacoast; *north*, an undefined line running east from the sea to the Toung-gnyo hills far enough north to include all the tributaries of the Wa-kha-roo.

† Exclusive of the Islands the boundaries of this tract may be given thus:—*West* and *south*, the seacoast; *south* and *east*, the Siamese boundary; *north*, the Amherst district.

east, and the hills and high g orth and south which mark respectively the south e Na-weng and the south watershed of the Thoo ead-quarters are at present at Prome. The area o is division is 612 square miles and the total are l about 800 square miles. The estimated number o trees is computed at 2,40,000.

III. The Prome division co orthernmost portion of the valley of Irrawaddy u line and includes the forests on the west of that riv frontier and the Ta-zoung-gyee spur. The head-q at Prome. The eastern forests are those lying on Irrawaddy and originally extended over very larg ing to the ravages caused by the Hill garden sequent on the influx of squatters from Upper I e now chiefly limited to the head-waters of nd Bhwot-lay and of such of their tributaries Pegu Roma. The area of teak-producing tra re than 255 square miles and the number of 1st ing in them in 1868 was estimated at 1,03,000. ests, that is those on the west bank of the Irraw d chiefly on the hills and high ground along the akan Roma, and although extending over a large a lue than the eastern forests on account of the inferi e size and of the quality of timber produced. Th are almost limited to areas between the Ma-htoon ms and to the lower parts of the western tributar htoon but there are others also of smaller extent o l on some of the more southern tributaries.

IV. The forests of the Western divi arters of which are at Henzada, are bounded on the rome division, on the east by the Irrawaddy as h of the Bassein or Nga-won and thence by that on the south by the sea and on the west by the . The teak localities are very scattered and sma value of the division lies in its supplies of Thit ka-do: There are as yet no reserves here.

V. The forests of the Tsit-toung divisi rters of which are at Toung-ngoo, are those w n the Pegu Roma hills on the west and the Poung-l the east; northward they extend to the frontier d to the extreme limits of the tract drained by the K l its tributaries on the west of the Tsit-toung river a ter-

shed of the Kyouk-gyee stream on the east. They were all worked on the permit system until 1874. Up to 1868 the Bhawnee forests formed a portion of this division but in that year they were transferred to Rangoon and in 1878 to the newly formed Shwe-gyeng division. The character of the forests on the west resembles in many respects that of those in the Tha-ra-wa-dee division, which lies to the west of the Pegu Roma range, the geological formation being much the same in both. The area of teak localities is estimated at 350 square miles and in 1868 the number of 1st class trees was put at 2,56,500. The area of the reserves is 12 square miles.

VI. The Shwe-gyeng division, with the head-quarters at Shwe-gyeng, was formed in 1877: it is bounded on the north by the Tsit-toung division, on the west by the Pegu Roma, on the south by the Rangoon division, and on the east by the western watershed of the Bhee-leng. The chief teak localities are situated on the Kwon, Re-nwe, Bhaing-da, Kaw-lee-ya and Bhawnee streams and cover an area of some 200 square miles but are at present hardly workable as the streams are blocked up in the lower parts of their courses and are not fit for floating timber. The teak localities on the east of the Tsit-toung are small and scattered and cover, in the aggregate, an area of about 50 square miles. The reserves as yet cover an area of 30 square miles only.

The Tenasserim circle is divided into two administrative divisions.

I. The Salween division is comprehended between the following natural limits.

North.—The Pa stream and thence the Tsit-toung east watershed range of hills, as far as the sources of the Bhee-leng river.

East.—The Salween river from the mouth of the Pa to the mouth of the Thoung-yeng and thence the Thoung-yeng to the Siamese boundary range.

South.—The Siamese boundary range to the Three Pagodas; the south watershed of the Attaran river; and the south and east watershed of the Re.

West.—The seacoast from the mouth of the Re to the mouth of the Bhee-leng; the lower part of the Bhee-leng, below the town of the same name; and the Bhee-leng and Tsit-toung watershed range.

The area of the reserves is 84¾ square miles but to this will very shortly be added 150 square miles recently approved

of by the Forest-Staff Officer. f forest land is estimated at about 20,000 squ t district 14,742, Shwe-gyeng district 100, Salw 4,625) and the number of 1st class teak trees n area of 438 square miles.

II. The south Tenasseri prehended between the Bay of Bengal on t se frontier line on the east, the southern waters he north and the Bay of Bengal on the sou erves have yet been selected here. The total a s estimated at 7,097 square miles (Tavoy distri istrict 3,542) within which are no teak locali reas abounding chiefly in Pyeng-ga-do (*Xylia* nan (*Fagræa fragrans*), Gan-gaw (*Mesua ferre opea odorata*), Thit-kha (*Pentace Burmanica*) er evergreen varieties.

Teak plantations.

The subject of artificially inc unt of teak timber instea y to its natural reproducti ed attention but it was not until comparatively t the labour of the Forest department in this c ith success. In 1842 experimental plantations he Attaran valley but there were no satisfacto 43 another and equally unsuccessful experime near the Hlaing-bhwai river. Nothing furt till 1856 when about 40 acres of land near the heng-gannee-noung stream in the valley of th re planted but the work was abandoned o nsalubrity of the climate, the distance of the p Maulmain and the difficulty of procuring labo however, an experimental plantation was forme bank of the Irrawaddy, a short distance below l ks having been filled up and its area increase rs about 66 acres. Between 1858 and 1865 sn ns were established in the Rangoon, Henzada (anoung) and Shwe-gyeng districts, and the total a rimental cultivation was thus made up to rather . Since then regular plantations have been forme overing an area of 1,716 acres in the Rangoon fo 6 acres in the Tsit-toung forest division, 73 acres forest division and 17 acres in the Salween fores der recent orders plantation work is to be concen ngoon forest division and carried out in the other to a

limited extent yearly, and then by the agency of such Hill garden cultivators as will assist in planting teak in their gardens, receiving remuneration from the Government in various ways, direct and indirect. In fact until 1868 little was done to assist the reproduction of teak but since then an area of 3,066 acres has been cultivated in Government plantations and an area of 1,341 acres has been cultivated under Major Seaton's teak Hill garden system.

Cinchona Plantations.

The vast importance of Quinine as a prophylactic and as a cure for fever together with the expensiveness of the drug has led the State to establish plantations for its cultivation in several parts of India. In the latter end of December 1868 a small plantation was commenced in the Tsit-toung forest division on the Ploo-ma-do hill, south-east of the town of Toung-gnoo, at an elevation of 2,100 feet, and here 180 plants of the "Succirubra" or red bark variety were planted of which 128 have survived. Two plants of the same species, planted out in 1866 on the Bo-ga-le hill at an altitude of 2,800 feet but in rather on exposed situation, have attained a height of 10 feet and nine feet four inches respectively. A plantation was formed in 1871-72 at Than-toung-gyee, 18 miles east of Toung-ngoo, at an elevation of 3,700 feet.

The Cinchona Succirubra is the only one of the different species tried which has succeeded at all, but even plants of this species, though vigorous enough, have a bushy and gnarled appearance and are already covered with seed though only about from 10 to 15 feet high. They will always remain stunted and branched.

Cinchona Condominea, which has been planted over more than two-thirds of the whole area of 100 acres, has failed. The plants grow well for from two to three years but then begin to sicken and die. Plants have been gratuitously distributed to heads of Christian Missions.

Ficus elastica was introduced into the province and 21,774 plants put out in the Ma-ga-ree reserve. They grow well and have obtained a height of from five to 15 feet, but it is as yet too early to judge whether the plant will retain its quality out of its natural geographical limits.

Chevanesia esculenta, a caoutchouc-yielding creeper, has been planted in the Ma-ga-ree forest and grows vigorously.

Forest Products.

Besides teak there are numerous trees in the forests of the Province which are valuable either from the wood, the oils, the gums or the dyes they furnish.

Amongst timber-producers the most important are :—

Pyeng-ma (*Lagerstrœmia reginæ*) found in the mixed forests all over the country below Prome and Toung-ngoo, except in the extreme east and on the higher slopes of the more lofty mountains, but principally in Pegu. The average height is from 50 to 60 feet and as a rule the trees have clean stems of from 20 to 30 feet in length with a girth* of from six to 12 feet, the wood is of a reddish hue and is used for the fittings of boats, sometimes for the hulls of canoes, for planking, beams, scantling and a variety of purposes.†

Pyeng-ga-do (*Xylia dolabriformis*) is found in all the deciduous forests, but principally in the upper mixed forests, and throughout the province. In the Prome forests it is usually about three feet in girth but elsewhere it attains a larger size. It is most plentiful in, and is one of the, if not the, most important trees, throughout the Arakan division. The trees are usually from 90 to 100 feet high with clean stems of from 50 to 60 feet and with a girth of from nine to 12 feet. The sap-wood decays easily but this is small in large trees; white-ants will not attack the heart-wood, which is brown to dark brown, heavy, fibrous but close grained, very hard, strong and durable but not easy to work. It is used in this Province principally for house and bridge posts and also for ploughs, boat-anchors, in the construction of carts and for other similar purposes. It is recommended for spars, crooks, carpenters' tool handles and generally for all purposes for which a moderately hard, strong wood not liable to split is required. It has been strongly recommended for railway sleepers. From Arakan, between 1865 and 1868 inclusive, the East Indian Railway Company obtained 70,377 sleepers. "In "the Madras Gun-carriage manufactory it is used for poles, axle "cases and braces for transport limbers, poles and yokes for water "carts, cheeks, and axle cases for light mortar carts. Captain "Puckle, writing from Mysore, says it is used for furniture, shafts, "plough heads and knees, and crooked timber in ship-building "and railway sleepers."‡

Eng (*Dipterocarpus tuberculatus*) is plentiful in Pegu and Tenasserim and grows on sandy soil in the south and on laterite

* The girth is measured at from four to five feet from the ground.

† Dr. Brandis says that it is also used for house posts and carts and latterly for ordnance purposes, and Dr. Mason says that "the posts of an old wharf at Tavoy which were of "this wood stood erect for twenty or thirty years; but house post often decay in the ground "in a much shorter period." It is difficult to believe that these authorities refer to *Lagerstrœmia reginæ*, ordinary 'Pyeng-ma,' for that undoubtedly rots readily when exposed to atmospheric influences and is durable only when protected from the rain and heat.

‡ Balfour's Trees of Southern India, Madras, 1862, p. 133.

in the north, where in parts it forms extensive forests. The trees are from 70 to 80 feet in height with clean stems of from 40 to 50 and with a girth of from eight to 10 feet. The wood, which is not durable, is brown with darker coloured heart-wood, rather heavy and loose grained, sometimes used for canoes but more generally for planking. Unlike its congeners *D. lævis*, *D. turbinatus*, etc. it yields no wood-oil but from the branches there exudes a clear yellow resin.

Eng-gyeng (*Hopea suava*, Wall. *apud* Brandis *et* Balfour, *Pentacme Siamensis*, Kurz.), is found chiefly in the eastern portions of the Toung-ngoo and Shwe-gyeng districts but also in other parts of the Tenasserim division and in Pegu but is nowhere abundant. The wood is dark or reddish-brown, tough and hard, close grained and very heavy; it is used principally in house-building and also for bows and a variety of other purposes where almost any hard, tough wood will answer.

Gyo (*Schleichera trijuga*) is found in the greatest perfection on the banks of the Tsit-toung river above Toung-ngoo but it occurs elsewhere, especially in the northern and central tracts of the Pegu and Irrawaddy valleys, in the plains as well as on the hills. The wood is very heavy, close grained and durable and takes a high polish and is locally used for pestles of mortars, axles of wheels and teeth of harrows. It is found in many other parts of India and is used for screw rollers for sugar-mills, cotton-presses (Bombay), oil-presses, sugar crushers, axle-trees of carts and of ploughs (Ganjam and Gumtur) and generally where much strength in small space is required. In Ceylon and in Ganjam a considerable quantity of gum lac is gathered from its branches.

Thit-tse (*Melanorrhœa usitatissima*) is plentiful especially towards the north of the Province. In full grown trees on good soil the average length of the trunk to the first branch is 30 feet and the average girth, measured at six feet from the ground, is nine feet. The wood is dark-coloured and close and fine grained and is preferred by charcoal burners to that of any other tree. It is used for anchors and tool helves; it would probably answer for sheaves or block-pulleys and for all purposes where a strong and not very heavy wood is useful. When green it sinks but when dry floats in water. A black varnish is extracted from it.

Htouk-kyan (*Terminalia macrocarpa*) is one of the largest trees and is very common in Pegu; the stems are of very regular shape and the heart-wood is dark brown. The timber is used for house posts and for planking.

Theng-gan (*Hopea odorata*) is one of the finest timber trees of the country, found principally near mountain streams and in the evergreen forests. In Pegu it is comparatively scarce but it is plentiful in Tenasserim and large specimens are common east of the Tsit-toung. The wood, which is light brown, heavy and close grained is said to be more durable than teak and is much used for cart wheels and for canoes and boats; in Tavoy and Mergui it is sawn up into planks for house-building. According to Kurz both Theng-gan and Koung-hmoo are considered as *Hopea odorata* but the wood is certainly not the same nor is Koung-hmoo valued by the Burmese as Theng-gan is. Brandis describes Koung-hmoo as "*Dipterocarpus sp.* Trees of an immense size used for canoes."

Byoo (*Dillenia pulcherrima*) is abundant in the Eng, low Savannah and low forests and yields a hard, strong wood used for rice-mills. Zeng-bywon (*Dillenia pentagyna*), which is found principally in the mixed forests, furnishes a yellow wood used for house posts and beams and rafters. Tha-bwot-gyee (*Miliusa velutina*) grows chiefly in the lower and lower mixed forests, rarely in the upper. The wood is grey, soft, rather heavy, fibrous but close grained, and is used for the poles of carts and harrows, yokes, spear shafts, oars, etc. Lek-pan (*Bombax malabaricum*) is abundant in the plains, the wood is light and loose grained and is used principally for coffins. In the cold season the trees, which occur usually in groves, are a mass of bright red flowers and shew conspicuously in the landscape. The seed furnishes a fine, soft, silky cotton which is used for stuffing pillows and mattresses. Peng-le-ka-na-tso (*Heritiera littoralis*) is found in the tidal forests and yields a brown, light and rather loose grained wood used locally for house posts and rafters and for firewood by salt boilers. Hpek-won (*Berrya mollis*) is found on elevated ground; the wood, which is red, is much prized for axles, the poles of carts and of ploughs and spear handles, it is also sawn up for building purposes. Dwa-nee (*Eriolæna Candollei*) is not uncommon in the mixed forests but the trees are not large; the sap-wood is grey but the heart-wood is red, tough and elastic and close grained, and is used for gun-stocks, paddles and rice pounders. Tshiep-khyee (*Sapindus sp.*) is found on the hills and in the forests skirting them; the wood, which is grey with a beautifully mottled grain, is prized for house posts and ploughs. Thit-ka-do (*Cedreela Toona*) grows in the evergreen tropical forests but nowhere attains such a size as in India. The wood is reddish turning to reddish-brown with a silvery lustre, soft, fibrous, coarse but rather close grained. It is useful for many purposes and in India

is much used by cabinet makers. It is one of the four kinds of trees the felling or injuring of which in Government forests, except under special sanction, is altogether prohibited. Thit-ya (*Shorea obtusa*) grows in the open and hill Eng forests and sheds its leaves in the hot season. The trees are from 70 to 80 feet in height with a clean stem of from 40 to 50 feet and in girth of from six to seven feet measured four or five feet from the ground. The wood is brown, nebulous, rather coarse and light and loose grained. It is used for house posts, rice mortars, tool handles and planes and also sometimes for canoes. The Burmese name Thit-ya or "Itch wood" is derived from the itching which is caused when its chips or bark are brought into contact with the skin. Bhoom-mai-za (*Albizzia stipulata*) is found in the evergreen tropical and hill forests wherever these are but especially in Pegu and the valley of the Tsit-toung where it is common; in some places it is evergreen in others it sheds its leaves in the cold season. The trees are from 100 to 120 feet in height with clean stems of from 60 to 80 feet and have a girth of from eight to 12 feet. The sap-wood is broad, light, white, coarse grained and fibrous but the heart-wood is dark brown almost black, hard and heavy and small; it takes a fine polish and is prized for cart wheels, small canoes and for bells for cattle. It is probably good for furniture and cabinet work. Kook-ko (*Albizzia Lebbek*) is found in Pegu and Tenasserim in the evergeen, moister upper mixed and even in the dry forests. Large trees are becoming scarce in the valley of the Irrawaddy. The sap-wood is white, coarse and fibrous; the heart-wood is blackish-brown, close grained, rather heavy, coarse and fibrous but compact and takes a fine polish. The wood is used for cart wheels, canoes and oil presses. In the Prome district a special tax was levied by the Burmese Government on the felling of Kook-ko which was fixed at a higher rate than that for teak or any other tree. Sha (*Acacia catechu*) is more valuable for the cutch or Terra Japonica extracted from it than for its wood. It grows in the dry forests all over the plains of Pegu and is scattered over the hills but it is rare in the lower mixed and Savannah forests. It is very common in the northern part of the valley of the Irrawaddy, or rather of that portion which is British territory, and in the Toung-ngoo district, and has been found far to the eastward on the hills forming the watershed between the Tsit-toung and the Salween. The trees are small, generally from 50 to 60 feet in height, with clean stems of from 15 to 25 feet and a girth of from four to six. The sap wood is yellowish-white and varies in bulk according to age from one inch to three inches and more; it is

rather heavy and fibrous but close grained. The heart wood is dark brown, fibrous, very strong and durable, indeed said to last longer than teak, and takes a fine polish. It is used for house posts, spear and sword handles, bows, etc. There are, according to Dr. Brandis, "several varieties differing in shade, specific weight and yield of cutch."* Nan-ta-roop (*Altingia excelsa*) is a leaf-shedding tree, found in the evergreen tropical forests in the south of Tenasserim, from 150 to 180 feet in height with a clean stem of from 80 to 100 feet and a girth of from 15 to 20 feet. The wood is very hard, close grained, oily and of a somewhat balsamic odour. According to Kurz it is one of the most valuable timber trees in Java. Yoon (*Anogeissus acuminata*) is a leaf shedding-tree found in the forests of Pegu and Tenasserim, especially in the north. It is from 80 to 100 feet in height with a clean stem of from 40 to 80 feet and a girth of from nine to twelve feet. According to Brandis it is almost equal to Htouk-kyan (*Terminalia macro*[illegible]) in size and in the regular growth of its stem but according[illegible] the timber can rarely be obtained straight. The wo[illegible] own, heavy, close grained, hard, strong and dura[illegible] but exposed to the water it soon decays. It is [illegible] ing and indoor purposes and would be valuab[illegible] for its weight. Bhan-bhwai (*Careya arborea*) i[illegible] af-shedding tree found in the open and dry, and [illegible] nd savannah forests all over Pegu and Tenasser[illegible] ons two varieties, a light and a dark, both having [illegible] ich do not appear to differ in weight or in anyth[illegible] our. The trees are from 50 to 60 feet high with a [illegible] 12 to 20 feet and a girth of from five to eight fe[illegible] avy, red-brown (in the dark variety), close and [illegible] ugh, strong, durable, stands the action of water w[illegible] fine polish. According to Captain Dance the t[illegible] oned floats in water and for ordnance purposes h[illegible] for helves. In Burma it is used for house post[illegible] nks, cart frames, etc. In India the fibrous bark i[illegible] s for matchlocks, in Ganjam for the scanty clo[illegible] and other Hindus affecting peculiar sanctity, and [illegible] xles of bullock carts and in buildings. Accordin[illegible] im-ber is praised by all who have noticed it [illegible] ell, Wight and Cleghorn. Lay-za (*Lagerstrœmia*[illegible] d in the evergreen tropical and upper mixed for[illegible] egu and Tenasserim. The trees, which shed[illegible] hot weather, are from 70 to 100 feet in height with [illegible] of

* List of specimens of some of the woods of British Burma. Ran[illegible]

from 50 to 60 feet and an average girth of from seven to 12 feet. The stem is not always round but is inclined to form buttresses. The wood is dark brown, close grained and heavy, with the annual rings distinct and narrow, and is used in building and for paddles, canoes, cart wheels, bows and spear handles. Myoukkhyaw (*Homalium tomentosum*) grows in the mixed forests throughout the province but more especially in Pegu. The trees are from 80 to 90 feet in height with a clean stem of from 40 to 50 feet and a girth of from eight to 10 feet. The bark is fine grained and of a pale grey-green colour and marks the tree very distinctly and unmistakeably. The wood is light yellow, turning pale to greyish brown very heavy, very close grained but of unequal fibre and rather soft; it takes a very fine polish; it is principally used for teeth of harrows. Anan-ma (*Fagræa fragrans*) [which must not be confounded with Anan-bho (*Crypteronia paniculata*) a very useless tree with the wood reddish-coloured, crooked grained, sometimes but rarely used for cart-wheels and more generally for fire wood] grows in the Eng and hill forests and principally in Tenasserim, particularly up the river Attaran, it is also very abundant in other parts of Amherst and in Tavoy and Mergui. The trees, which are of very slow growth, are from 25 to 30 feet in height with a clean stem of from 10 to 12 only and with an average girth of from three to four feet. The wood is yellow or light brown, white streaked, compact and hard. When seasoned it sinks in water. "Its chief value as a "timber is its imperishability when exposed to damp or water. "Mr. O'Riley and Captain Dance say that the teredo navalis will "not attack it and Captain Dance mentions that neither heat nor "moisture will warp or rot it, that it is impervious to the attacks "of ants and that the posts of a wharf at Tavoy, which for several "years had daily, as the tides flowed and ebbed, been partly dry "and partly wet, continued untouched by the worms."* It is used for house building, posts and piles for bridges, and wharves and has been recommended for railway sleepers.

These are only some of the more important timber-producing trees and for a more complete list reference must be made to Kurz's reports, Mason's "Burma", Balfour's "Timber trees", and Brandis' reports and pamphlets.

The principal oil, gum, resin, dye and fibre producers are:—

* The Timber trees, Timber and Fancy woods, as also the forests of India and Eastern and Southern Asia, by E. Balfour. Madras 1862. p. 115.

OILS.

Name.		Habitat.	Where found.	Product.
Burmese.	Scientific.			
?	Dipterocarpus lœvis.	Evergreen tropical forests.	Arakan, Pegu and Tenasserim.	Yields a superior quality of wood oil in large quantity.*
?	D. turbinatus.	do.	do.	do. *
Ka-gnyeng.	D. alatus,	do. and moist upper mixed forests	do.	do. *
Thee-hoot-tha-yet.	Anacardium occidentale.	Beach forests.	Tenasserim.	The pericarp of the a black le) while emselves lible oil.
Dan-tha-lwon.	Moringa pterygosperma.	Cultivated.	Arakan, and Tenasse	he oil of
?	Melaleuca Leucodendron.	Upper mixed forests.	Tenasserim the south).	young uti oil.
Kha-ra.	Mimusops elengi.	Evergreen tropical forests.	Tenasserim	a fra-
Ka-lwa.	Cerbera Odallam.	Littoral forests.	Arakan, Tenasserim	il for
Kywon.	Tectona grandis.	Leaf-shedding forests.	Arakan, and Tenas	tain- and e for s.

Cocos nucifera, yielding the cocoa nu is largely cultivated and might be much mor ng the Arakan coast as it is in Ceylon, and as be but for the sparseness of population, the h- ing the coast except at a few spots and the of land communication between the ports and e production of the trees. The sesamum plan , especially by the Kareng on the hills, and - from. The ground nut is cultivated to some expressed the nut being roasted and eaten.

* Gurjon oil, supposed to be a cure for le

RESINS AND GUMS.

Name.		Habitat.	Where found.	Product.
Burmese.	Scientific.			
?	Cochlospermum gossypium.	Dry forests	Common in the northern portion of the valley of the Irrawaddy.	Yields a gum, a substitute for tragacanth.
Pa-ra-wa.	Garcinia speciosa.	Evergreen tropical forests.	Tenasserim.	Gamboge.
Tha-nat-taw.	G. elliptica.	do.	Pegu and Tenasserim.	do.
Ma-daw.	G. Roxburghii	do.	Arakan, Pegu and Tenasserim.	do.
Toung-tha-le.	G. cowa.	Evergreen tropical and moister upper mixed forests	Pegu and Tenasserim.	A yellow gum resin which, disolved in turpentine, forms a beautiful permanent yellow varnish for metallic surfaces.
?	G. succifolia.	Swamp forests.	do.	do.
Eng.	Dipterocarpus tuberculatus.	Eng and dry forests.	do.	Branches exude a clear yellowish-brown resin.
?	D. lævis.	Evergreen tropical forests.	Arakan, Pegu and Tenasserim.	Exudes a dirty brown resin.
Ka-gnyeng.	D. alatus.	do. and moist upper mixed forests	do.	do.
Thit-ya.	Shorea obtusa.	Open and hill Eng forests.	Pegu and Tenasserim.	Yields a white resin.
?	S. robusta.	?	Pegu and Tenasserim.	Dammar abundantly
?	S. nervosa.	?	Tenasserim.	Yields a pellucid yellowish resin.
Eng-gyeng.	Pentacme Siamensis.	Open and dry forests.	Pegu and Tenasserim.	Yields a red resin.

RESINS AND GUMS.—(*Continued*).

Name.		Habitat.	Where found.	Products.
Burmese.	Scientific.			
Theng-gan.	Hopea odorata	Evergreen tropical and moist upper mixed forests	Arakan, Pegu and Tenasserim.	Yields a yellow resin.
Lek-pan.	Bombax malabaricum.	Leaf-shedding fortests.	Pegu and Tenasserim.	Brown resin (*Muchi ras*).
Shaw-bhyoo.	Sterculia fœtida.	Upper mixed forests.	do.	A gum resembling tragacanth.
?	S. urens.	do.	do.	Exudes a gum.
?	S. villosa.	do.	do.	do.
Shaw-wa.	S. ornata.	Evergreen forests, occasionally in hill dry forests.	do.	do.
?	S. campanulata.	Evergreen tropical forests.	do.	do. resembling tragacanth.
Hman.	Feronia elephantum.	Dry forests	Pegu.	A gum like gum arabic, and also gives lac.
?	Ailanthus malabaricus.	Evergreen tropical forests.	Pegu and valley of the Tsit-toung.	A reddish resin.
?	Cornarium Bengalense.	Tropical and moist upper mixed forests	Pegu, but not very common.	Exudes a clear amber coloured very pure resin which soon turns hard and brittle resembling copal.
Peng-le-oon.	Carapa obovata	,,	Forests of the delta of the Irrawaddy.	Exudes a brownish brittle resin.
Gyo.	Schleichera trijuga.	Leaf-shedding forests..	Arakan, Pegu and Tenasserim.	Exudes a yellowish resin and also gives lac
Khye.	Semecarpus cuneifolius.	Upper mixed forests.	Pegu and Tenasserim.	Black resin.

RESINS AND GUMS.—(*Continued*).

Name.		Habitat.	Where found.	Products.
Burmese.	Scientific.			
?	S. albescens.	?	Tenasserim.	Black varnish.
?	Holigarna longifolia.	?	do.	do.
?	H. Grahamii.	Evergreen tropical forests.	Pegu and Tenasserim.	do.
Thit-tse.	Melanorrhœa usitatissima.	Open and hill Eng forests.	do.	A back varnish much used.
Na-bhai.	Odina Wodier.	Leaf shedding forests.	Arakan, Pegu and Tenasserim.	A yellowish gum in considerable quantities which furnishes an inferior varnish.
Dan-tha-lwon.	Moringa pterygosperma.	Cultivated.	do.	Yellow resin.
Gwe.	Spondias pinnata.	Leaf-shedding forests.	Pegu and Tenasserim.	Yields large quantities of a transparent juice which soon hardens into a mild, insipid, yellowish gum, somewhat resembling gum arabic.
Pouk.	Butea frondosa	do. chiefly savannah.	Arakan, Pegu and Tenasserim.	A red, brittle and clear resin, a sort of gum kino of commerce.
Reng-daik.	Dalbergia cultrata.	Leaf-shedding, chiefly savannah.	Arakan, Pegu and Tenasserim.	Red resin.
Pa-douk.	Pterocarpus Indicus.	Upper mixed forests.	Pegu and Tenasserim.	Yields a red resin, a sort of gum kino.
Myouk-ta-gnyek.	Parkia insignis	Evergreen tropical forests.	Tenasserim.	Exudes a red resin.
Nan-loon-gyaing.	Acacia Farnesiana.	Cultivated.	Arakan, Pegu and Tenasserim.	Exudes a considerable quantity of a sort of white gum arabic.
Sha.	Acacia catechu	Dry forests	Pegu.	Yields in large quantities the Cutch of commerce, exudes a blackish resin.

RESINS AND GUMS.—(*Continued*).

Name.		Habitat.	Where found.	Products.
Burmese.	Scientific.			
Kook-ko.	Albizzia lebbek.	Evergreen tropical, moister upper mixed and dry forests.	Pegu and Tenasserim.	Yields a pellucid yellowish resin.
Ta-gnyeng.	Albizzia Jiringa	Evergreen tropical forests and along streams in moist forests.	do.	Exudes a blackish resin.
Nan-ta-roop.	Altingia excelsa	Evergreen tropical forests.	Tenasserim.	Yields a kind of storax.
Pyeng-ma.	Lagerstrœmia reginæ.	Mixed forests.	Arakan, Pegu and Tenasserim.	Exudes a resin.
Lay-za.	L. tomentosa..	Evergreen tropical and moist upper mixed forests	Pegu and Tenasserim.	Exudes a red resin.
Reng-khat.	Gardenia obtusifolia.	Dry and Eng forests.	do.	Yields a fine pellucid yellow resin.
Hpoom-ma-thien.	Blumea balsamifera.	Deserted hill gardens.	Arakan, Pegu and Tenasserim.	A small plant yielding camphor equal to the Chinese.
?	Isonandra polyantha.	Evergreen tropical forests.	Arakan.	Yields guttapercha, probably not inferior to that of Singapore.
Za-diep-hpo.	Myristica longifolia.	do.	Pegu and Tenasserim.	Exudes a red resin.
Thit-tan.	M. corticosa.	do.	do.	do.
Re-mien.	Aporosa villosa	Open forests	do.	do.
Hmya-tshiet.	Antiaris toxicaria.	Evergreen tropical forests.	do.	Exudes a white venomous resin used for poisoning arrows. The "Upas" of the Malays.

RESINS AND GUMS.—(*Continued*).

Name.		Habitat.	Where found.	Products.
Burmese.	Scientific.			
Gnyoung.*	Ficus laccifera	Evergreen tropical forests.	Pegu and Tenasserim.	Yields a very good sort of caoutchouc said to be as good as that of F. elastica.
Moon-taing.	Cycas Rumphii	Beach forests.	Tenasserim.	Exudes a good sort of resin.†
?	Cycas Siamensis.	Eng and dry forests.	Northern Pegu	Exudes a peculiar whitish resin like tragacanth.

DYES.

Name.		Habitat.	Where found.	Products.
Burmese.	Scientific.			
Thee-deng.	Bixa Orellana.	Cultivated and escaped.	Pegu and Tenasserim.	The orange red pulp furnishes the Arnotto dye or terra Orellana.
Khye.	Gluta elegans.	Tidal forests.	Delta and coast	From orange to black. With 1. Muriate of Tin:—three shades of orange varying with the temperature of the bath and the time of immersion. 2.—Acetate of Alumina:—two shades of flame colour. 3.—Acetate of iron:—two shades of drab. 4.—Ditto with a weak decoction of galls:—a fine black of two shades.
Thee-hoot-thayet.	Anacardium occidentale.	Beach forests.	Tenasserim.	The juice issuing from incisions in the bark is an indelible marking ink.

* There are besides many species of Ficus and of Artocarpus which yield caoutchouc of different qualities.

† Wood yields starch, in Ceylon the seeds are made into flour.

DYES.—(*Continued*).

Name.		Habitat.	Where found.	Product.
Burmese.	Scientific.			
?	Semecarpus Anacardium.	?	?	Nuts used as a mordant and for making an indelible marking ink.
?	S. Cuneifolius.	Upper mixed forests.	Pegu and Tenasserim.	Nuts produce an indelible marking ink.
Na-bhai.	Odina Wodier.	Leaf-shedding forests.	Arakan, Pegu and Tenasserim.	The bark is good for tanning.
Khyeng-roop-beng.	Garuga pinnata.	Mixed forests.	do.	Bark good for tanning.
Zee-beng.	Ziziphus Jujuba.	Leaf-shedding forests.	do.	Do. and lac found on it.
Ngoo-gyee.	Cassia fistula.	Do. chiefly savannah and lower mixed.	do.	Bark good for tanning.
Rwe-gyee.	Adenanthera pavonina.	Evergreen tropical and moister upper mixed forests	Pegu and Tenasserim.	Wood yields a red dye. (Seeds used by jewellers as weights).
Pyoo.	Rhizophora mucronata.	Littoral forests.	Arakan and Tenasserim.	Bark good for tanning.
Pyoo.	Bruguiera gymnorrhiza.	do.	do.	do.
Hpan-kha.	Terminalia tomentella.	Upper mixed and low forests.	Pegu and Tenasserim.	Fruit mixed with iron clay gives an ink of an inferior kind.
Kye-noo.	Barringtonia acutangula.	Mixed and swamp forests.	do.	Bark good for tanning.
Bhan-bhwai.	Careya arborea	Open and dry forests, lower mixed and savannah forests.	do.	Bark used for tanning.
?	Memecylon umbellatum.	Evergreen tropical forests.	Tenasserim.	Leaves and flowers yield a yellow dye.

DYES.—(*Continued*).

Name.		Habitat.	Where found.	Products.
Burmese.	Scientific.			
?	Woodfordia fruticosa.	Dry forests	Northern Pegu	Flowers yield a valuable red dye, of considerable importance but little known.
Gnyaw (Tenasserim) Nee-pa-tahe (Pegu)	Morinda citrifolia.	Evergreen tropical forests.	Pegu and Tenasserim.	Roots yield a bright yellow dye, or a valuable red dye when fixed with alum.
?	Symplocos racemosa.	Open and dry forests.	Pegu and valley of the Tsit-toung.	Bark yields a red dye.
Kywon.	Tectona grandis.	Leaf-shedding forests.	Arakan, Pegu and Tenasserim.	Leaves have been strongly recommended for dyeing silk yellow, olive, etc.
Ta-sha.	Cicca emblica.	Deciduous forests.	Arakan, northern Pegu and Tenasserim.	Bark and fruit used for tanning.
Taw-tee-teng.	Mallotus Philippinensis.	do.	Arakan, Pegu (common), Tenasserim.	Roots yield a red dye and the crimson powder of the capsules a scarlet dye used chiefly for silk. Bark used for tanning.
Pien-ne.	Artocarpus integrifolia.	Cultivated.	Arakan, Pegu and Tenasserim.	Wood used in dyeing cloths yellow.
Myouk-loot.	A. Lacoccha.	Evergreen tropical forests.	Pegu and northern Tenasserim.	do.
Mo-ma-kha.	Salix tetrasperma.	Along streams.	Pegu and Tenasserim.	Bark used for tanning.

FIBRES.

Name.		Habitat.	Where found.	Products.
Burmese.	Scientific.			
Dwa-boot *vel* Ka-law-bo.	Kydia calycina	Dry and mixed forests	Pegu and Tenasserim.	The liber yields fibre.
Thong-ban *vel* Hlee-gnya-shaw.	Hibiscus tiliaceus.	Tidal and beach forests.	do.	Strong fibre for cordage.
Rwek-won.	H. vulpinus.	Evergreen tropical forests.	Arakan, Pegu and Tenasserim.	do.
?	Thesperia populnea.	Tidal and beach forests.	do.	do.
Shaw-bhyoo.	Sterculia fœtida	Upper mixed forests.	Pegu and Tenasserim.	Liber furnishes fibre.
?	S. urens.	do.	do.	do.
?	S. villosa.	do.	do.	Liber is readily made into strong and durable ropes.
Shaw-wa.	S. ornata.	Evergreen forests.	do.	do.
Wek-shaw.	S. colorata.	Leaf shedding forests.	Arakan, Pegu and Tenasserim.	Liber yields fibre.
Thee-bhyoo.	S. scaphigera.	Evergreen and moist upper mixed forests.	Pegu and Tenasserim (not common).	do.
Hpa-lan.	Bauhinia racemosa.	Dry forests entering savannah forests.	Pegu.	Bark can be used for ropes.
Eka-rit.	Millingtonia hortensis.	Evergreen tropical forests.	Arakan and Tenasserim.	Bark used as an inferior substitute for cork.
Tshap-sha.	Boehmeria Malabarica.	Evergreen tropical and upper mixed forests.	Arakan, Pegu and Tenasserim.	Liber furnishes a strong cordage.

FIBRES.—(*Continued*).

Name.		Habitat.	Where found.	Product.
Burmese.	Scientific.			
Tshap-sha.	Sarcochlamys pulcherrima.	Evergreen tropical and upper mixed forests.	Pegu and Tenasserim.	Liber furnishes a strong cordage.
Tshap-sha.	Boehmeria Hamiltoniana	Evergreen forests.	Pegu and northern Tenasserim.	do.
Hpwot-khyaw.	Morocarpus longifolius.	?	Pegu.	do.
?	M. Wallichianus.	Moist upper mixed.	do.	do.

Amongst other cordage yielding trees are Caryota urens and C. sobolifera, Arenga saccharifera, Wallichia disticha, Cocos nucifera and Borassus flabelliformis.

CHAPTER IV.

ETHNOLOGY.

Judging from the great variety of names and dialects one is tempted at first to believe that remnants of countless tribes torn from their original seats by wars, revolutions and intestine feuds wandered hitherward and fixed their habitations in different parts of the country now called Burma. But a closer examination of the manners and customs of the inhabitants and of their various dialects, and of the remnants of traditions still preserved amongst them shews that order is deducible from the seeming chaos and that they may be divided into four main stocks. Round these four—Burmans, Talaing (Moon or Peguans), Kareng and Shan—almost all the minor divisions can be grouped; but not all, for some of the wild tribes inhabiting the Hill Tracts of Arakan, and the Selungs, who are found only on the islands of the Mergui Archipilago, differ entirely from these.

Burmans.

The name by which the Burmans call themselves is Myam-ma or Mram-ma commonly pronounced Byam-ma or Bam-ma. The origin of this name is by no means clear. By the Chinese and by such of the neighbouring tribes as are under Chinese influence they are called "Mien" and the Thibetans seem to know them under the same appellation. According to the very learned Dr. Bigandet, Vicar Apostolic of Pegu, it is quite possible, nay it is probable, that "Mien" is the true name of the race and that the affix "Ma" has been added for euphony, and of such an addition many instances can be given. But the equally learned Sir Arthur Phayre appears to have adopted a different view. Having disposed of the argument in favour of Mram-ma or Myam-ma being traceable to the native name for man he continues in a note to his History of the Burmah Race.* "I believe it to be a modern appellation adopted by the "people since they became Budhist, and derived from the Pali "word Brah-ma signifying celestial beings.....The only names "for the tribes which may have become the Mram-ma nation, "which we are acquainted with, are Pyoo, Kan-yan or Kan-ran "and Thek or Sak." Of these we read in the early history of

* Journal of the Asiatic Society of Bengal. Vol. XXXIII p. p. 19. 20.

Prome. A few lines further on he adds "Is it possible that in "adopting the word Brah-ma as their national name they kept in "view also their native *ma (ma* and *mi* in many of the languages of the Himalayan, Indo-Chinese and Thibetan tribes meaning *I* and *man)* as Mr. Hodgson would appear to conclude? "This I will not venture to affirm, but of the direct origin of the "present national name I have no doubt, nor need it cause surprize "that a people should have adopted a foreign term to designate "themselves: with their religious instructors they received know-"ledge of every kind; the districts of their county were named "after the countries of their teachers.....From "the history it is evident that the name Mram-ma was not "adopted until several tribes had been united under one "powerful chief by whose fiat the name would readily have been "adopted." There are thus three views each held by men of great learning who have patiently investigated the subject. Mr. Hodgson appears to conclude that the appellation can be traced to the native name for man: Sir Arthur Phayre that it is derived from Brah-ma signifying "celestial beings", and was not adopted till after the introduction of Booddhism and after several tribes had been united under one chief: and Bishop Bigandet that it is another form or a corruption of "Mien," a name the Burmans brought with them from the Central Asian plateau.

It must always be borne in mind that as regards the Burmese language, equally with English, the orthography rather than the pronunciation must be taken as a guide, and that phoneticism destroys all the links which bind the words now used to those from which they have been derived and is the "murderer of history".

The Burmans are undoubtedly descended from a Tartar origin and, as the late Dr. Mason strongly expresses it, "this view is "confirmed by the face of the Burman which has his Tartar "genealogy stereotyped upon it in characters that cannot be mis-"taken." If the ancient Burmese annals are to be believed it appears that at some indefinite period before the sixth century before Christ a ruler, according to some of a kingdom in the present Oudh, attacked from the west a people that had come down from the slopes of the Himalayas and settled in the plains between the foot of the mountains and the Ganges and drove them eastwards into the valley of the Irrawaddy. There they settled and built the city of Tagoung, the ruins of which still remain on the east bank of the river about 130 miles above Mandalay. However much the details of this enforced emigration as given in the native histories may be unhistorical interpolations it appears clear that

the Burmans are of a kindred race with the Thibetans and originally came from Thibet. The chief features of the physiognomy of the two peoples are very similar; the Thibetan language has many words which are clearly the same as those used by the Burmans, and the arrangement of words in sentences is almost identical in the two languages. In his "History of the Burmah Race" published in the XXXIII volume of the Journal of the Asiatic Society of Bengal Sir Arthur Phayre states that "The theory of "Prichard in his Natural History of Man on this subject is proba- "ble, supported by existing facts, and accords with the physical "geography of the regions north of the countries now occupied "by the Indo-Chinese races. That author thus refers to those "peoples. 'The vast region of Asia forming the south-eastern "'corner of that Continent which reaches on the sea border from "'the common mouth of the Ganges and the Brahmaputra to the "'Hoang-ho, or Yellow River of China, and even further north- "'ward towards the mouth of the Amur is inhabited by "'races of people who resemble each other so strongly in moral "'and physical peculiarities, and in the general character of their "'languages, as to give rise to a suspicion that they all belong to "'one stock: with the rivers which descend from the high country of "'Central Asia and pour their diverging waters on all sides after "'traversing extensive areas of lower elevation, into the remote "'ocean, these nations appear also to have come down, at various "'periods from the south-eastern border of the Great Plateau, in "'different parts of which tribes are still recognized who resemble "'them in features and language'."

The Burman, in general, has a fairly well built frame with a strong and well shaped bust and with legs correctly formed but a little short. Both men and women have long black hair and are very proud of it; the men wear it tied in a knot at the top of the head and the women in a knot at the back: the latter not disdaining to supplement their own with that of others. The men have a singular habit, at one time universally adopted but now very slowly and gradually dying out, of deeply tattooing their persons from the waist to the knee in black so as to give the appearance of a pair of breeches; figures of all sorts of quadrupeds and reptiles, of ogres and of other monsters are represented but so closely together and the intervening spaces so filled up with tracery that it is almost impossible to distinguish the designs. The origin of the custom is very obscure. It is not practised by those other Indo-Chinese races who have not come into contact with the Burmese and appears to have been introduced at a compara-

tively recent date. The mode has not always been the same but has been several times altered by the caprice of different rulers who prescribed changes and modifications. In many cases figures are tattooed in red on the breast, back and arms; this is dictated partly by superstition and partly by an idea that it is beautifying.

Father Sangermano, who was sent out as a missioner in 1782, collected much information during his residence in Rangoon and the manuscripts which he compiled after his return to Italy, where he was president of the college of his order (Barnabite) at Arpinum, were translated by Dr. Tandy a member of the Roman Sub-committee of the "Oriental Translation Fund of Great Britain "and Ireland", and published in 1833 with a short preface signed "N. Wiseman", a name which has since become so well known as that of the Archbishop of Westminster The Reverend Father had but a low opinion of the Burman character. "The Burmese" he says "are distinguished for that timidity and servility which is "the characteristic of slaves.....But if they are dastardly and ab-"ject towards the Emperor and the Mandarins they are in the "same degree proud and overbearing towards those whom they "consider beneath them either in rank or fortune. There is no "contempt, oppression or injustice they will not exercise towards "their fellow men when they can assure themselves of the pro-"tection of the Government. They are thus vile and abject in "adversity, but arrogant and presumptuous in prosperity. There "is no one amongst them, however mean, who does not aim at "the dignity of Mandarin. For it is a frequent occurrence here "for a man to be raised in a moment, by the caprice of the "monarch, from the lowest state of poverty and degradation to "the rank of minister or general; and it is amusing to observe the "instantaneous change such an event makes in a man's demeanour. "He may have been modest, courteous and affable before, "but now he affects a tone of superiority and of gravity, and puts "on an imposing and severe air so that one would hardly recog-"nize in him the man of yesterday."

Another characteristic of the Burmese "is an incorrigible "idleness. Although the fertility and extent of their country "would seem to invite them with the prospect of great riches, yet "they are so indolent that they content themselves with cultivating "what is absolutely necessary for their maintenance and for pay-"ing the taxes. Hence instead of employing their time in impro-"ving their possessions, they prefer to give themselves up to an "indolent repose, to spend the day in talking, smoking and chewing "betel, or else to become the satellites of some powerful Mandarin.

"The same hatred of labour leads to an excessive love of cunning "and also to thieving to which they are much addicted. The "severity of the laws against theft is not sufficient to restrain their "rapacity, and the whole empire is overrun with robbers.

"Among the principal precepts inculcated to the Burmese "there is one that forbids lying; but perhaps there is no law less "observed than this. It would seem that it is impossible for this "people to tell the truth; nay, a person who ventures to do it is "called a fool, a good kind of man but not fitted for managing his "affairs. Dissimulation is the natural companion of the last men-"tioned habit, and the Burmese practise it to perfection. They "may have conceived an implacable enmity to another, they may "wish him evey kind of evil and be endeavouring by words and "actions to ruin him but not the slightest sign of their dislike "will be observed in their exterior deportment towards him; they "will wear a face of the greatest complacency in his presence and "they will transact business with him and talk with him as if he "were their dearest friend. On the contrary, have they fixed "their affections on any thing and determined to make it theirs, "then they will feign an absolute dislike to it."

The good Father is willing to qualify this black picture. "But" he adds "as every rule will have its exceptions, it must "not be supposed that the Burmese have not some good qualities "and", damning them with faint praise, "that some estimable per-"sons are not to be found amongst them. Indeed there are some "persons whose affability, courtesy, benevolence, gratitude and "virtues contrast strongly with the vices of their countrymen. "There are instances on record of shipwrecks on their coasts, "when the sufferers have been received in the villages, and treat-"ed with a generous hospitality, which they would probably not "have received in many Christian countries". Father Sangermano has other good points to bring to notice. "Besides giving "daily alms to their Talapoins (*Hpoon-gyee*) they all lay by "something to be applied to some sort of public benefit". They are very fond of thus "signalizing their generosity, and will often "deprive themselves of comforts, to have the pleasure of being bene-"factors to the public", yet "human views of vanity or ambition, "often enter into these actions, but still religious motives "always more or less exist."*

* "The writer when he visited Bhamo two years ago had the opportunity of witnessing a striking illustration of the above assertion" (that Booddhists impose upon themselves great sacrifices in order to build monasteries and za-yat). "Living in a fine and substantial "dzeat (*Za-yat*), in the vicinity of a large Pagoda, he remarked an elderly Burmese "woman, coming every morning with some flowers which she respectfully deposited in front

Very different is the character given to them by those who have seen them elsewhere than in and in the neighbourhood of large towns. "Unlike the generality of Asiatics, the Burmese are "not a fawning race. They are cheerful and singularly alive to "the ridiculous; buoyant, elastic, soon recovering from personal "or domestic disaster. With little feeling of patriotism they are "still attached to their houses, greatly so to their families. Free "from prejudices of caste or creed they readily fraternise with "strangers and at all times frankly yield to the superiority of the "European. Though ignorant they are, where no mental exer-"tion is required, inquisitive and to a certain extent eager for "information; indifferent to the shedding of blood on the part of "their rulers, yet not individually cruel; temperate, abstemious "and hardy, but idle, with neither fixedness of purpose nor perse-"verance. Discipline or any continued employment becomes "most irksome to them, yet they are not devoid of a certain degree "of enterprize. Great dabblers in small mercantile ventures they "may be called (the women especially) a race of hucksters; not "treacherous or habitual perverters of the truth, yet credulous and "given to monstrous exaggerations; when vested with authority "arrogant and boastful; if unchecked, corrupt, oppressive and "arbitrary; not distinguished for bravery, whilst their chiefs are "notorious for cowardice, for with the latter cunning in war ranks "far before courage. Inexpert in the use and careless in the "preservation of their arms, they are indifferent shots; and though "living in a country covered with forests, are not bold followers of "field sports and game."* The Burman "displays much spasmo-"dic energy and general laziness, much love of feasts and shows,

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"of a niche tenanted by a huge marble idol. She was poorly dressed but her mien and counte-"nance indicated that she had seen better days. Entering into conversation with her, the "writer learned from her that she was the widow of a wealthy man who had been the prin-"cipal writer of the Goyernor. Her husband had spent twelve thousand Rupees "in building the Pagoda in front of us and the dzeat, and had just died when the work was "completed, leaving to her and her only daughter nothing but the house they now dwelt in. "She was without any means of support. Having been asked whether she did not feel some "regret that nothing had been left for her subsistance, and whether she did not think her "husband would have behaved better in bestowing one half of his money for religious pur-"poses, and keeping the other half for the maintenance of his family the old lady gently "smiled and said, without hesitation, or showing the least sign of repining, that her husband "had acted very well and for the best; that she and her daughter by their exertions would "always be able to support themselves in their humble and poor condition.

"In many places the traveller's eyes are attracted by the sight of a lofty and roomy "Kiaong *(monastery)* adorned with fine carvings. When he inquires about the individual "whose pious liberality has erected the edifice, he is surprised and astonished to see him "living in the poor and wretched house which is pointed out to him". Life or Legend of Gaudama by the Right Rev. P. Bigandet, Rangoon, 1866 p. p. 526, 527, note.

* Report on the northern frontier of Pegu by Major Grant Allan, dated 18th July 1855, *apud* Yule. Much of this want of enjoyment in field sports is undoubtedly due to their religion which forbids the taking of life.

" much disregard of the sacredness of human life and much tender-
" ness for the lives of inferior members of the animal kingdom,
" much arrogance and inconsiderateness when placed in high
" position and last, though not least, much general truthfulness
" and, amongst unsophisticated villagers, the very unoriental trait
" of being unable to tell a specious falsehood.....Actual
" poverty is almost unknown, but riches are never accumulated.
" If any individual does, by a stroke of good luck or a most
" unusual exercise of thrift, amass a few thousand rupees he is
" sure to spend the greater portion of it in the erection of a
" Pagoda or a Kyoung or in some similar work of religious
" merit."*

Except when in authority they are kind in the extreme to strangers if treated with civility and not with hauteur, and this, there can be little doubt, is greatly due to the contempt with which they look upon any one who is not a Booddhist and has not as a boy passed at least seven days in a monastery. To them such a one is no better than a buffalo or a dog. In those of low degree this feeling shews itself in pitying kindness, in those in high positions in arrogance and insulting rudeness.

Nowhere is Royalty more venerated them it is amongst the Burmans: any action taken by commoners against royalty carries with it religious as well well as social penalties, yet nowhere is rebellion more common. To take life is an abomination, yet fishermen have always been tolerated and a large revenue derived from leasing ponds and lakes as fisheries; in Bassein as much as one-third of the whole revenue of the district.

The Burmese language is monosyllabic: the comparatively few words which are polysyllabic are derived from Pali which has supplied most of the terms that relate to religion and arts, but many of these exist only in a mutilated shape owing to the tendency of the Burmans to reduce all words to a monosyllabic form; compound words again, formed of the Pali word and its Burmese synonym superadded, are common. One of the principal features in the language is the arrangement of the words in a sentence, which, as in Thibetan, is the reverse of the order observed in English; on the other hand the Talaing and Shan languages and the Kareng dialects require substantially the English arrangement: another peculiarity is in the nouns, adjectives and tenses of verbs; they are all formed by the addition of affixes or suffixes to a verbal root, whilst passive verbs are, in very many cases, changed

* Statistical and Historical Account of the district of Thayet-myo by Colonel Horace A. Browne, Rangoon, 1874. p. p. 47, 48.

into active verbs by aspirating the initial consonant, e. g. *Kya-thee* to fall, *Khya-thee* to throw down. The written characters in use are, with one or two exceptions, composed of circles or segments of circles. The alphabet is derived from the Pali and was doubtless imported into Burma simultaneously with Booddhism but in accommodating an essentially Aryan alphabet to the sounds of a monosyllabic language considerable changes have been made in the phonetic value of many of the letters.

The Burmese language is written from left to right and with no spaces between the words. It consists of ten vowels and thirty two consonants.

The vowels are, အ–*ă*; အာ–*ă*; အု–*ee*; အီ–*ie*; ဥ–*oo*; ဦ–*oo*; ဧ–*e*; အဲ–*ai*; သြ *vel* ရြော–*aw*; ရြော်–*aw* and the diphthong အို–*o*. The second, fourth, sixth, eighth and tenth vowels have the same sound as the preceding one in each case but longer; ဧ–*e* is the foreign *e*, as *a* in *fate* or the first *e* in the French "*prevôt*" အဲ–*ai*, somewhat more open, as the French ê in "*tête*".

The consonants are :—

Gutturals.—က—*kă*; ခ—*khă*; ဂ—*gă*; ဃ—*ghă*; င—*ngă*
Palatals. — စ—*tsă*; ဆ—*tshă*; ဇ—*ză*; ဈ—*zhă*; ဉ—*gnyă*
Cerebrals.— ဋ—*tă*; ဌ—*htă*; ဍ—*dă*; ဎ—*dhă*; ဏ—*nă*
Dentals. —တ—*tă*; ထ—*htă*; ဒ—*dă*; ဓ—*dhă*; နဉ—*nă*
Labials. — ပ—*pă*; ဖ—*hpă*; ဗ—*bă*; ဘ—*bhă*; မ—*mă*
ယ—*yă*; ရ—*ră*; လ—*lă*; ဝ—*wă*; သ—*thă*
ဟ—*hă* ဝ; *n (final)*

ရ-*ră* is almost always pronounced by Burmese as *yă*. The Arakanese always, and the Burmese about Mandalay in some cases, give it its proper sound

The letters of the first row, horizontally, are each pronounced by a simple articulation, smooth and soft; the second row contains the aspirates of the first; the letters in the third are pronounced somewhat as those in the first but the sound given is rough and hard; the next row contains the aspirates of the third and the fifth contains the nasals. There is no difference in the pronunciation of the cerebrals and dentals; the former and ဋ–*lă* are found only in words of Pali origin; ဆ is properly a sibilant and occasionally but rarely receives this sound, as in *Henzada.*

Every vowel has its symbol which is used when it is compounded with a consonant to form a syllable. These symbols are :—

အ—inherent.			ဦ	—ူ	as ကူ
အာ—ာ	as	ကာ	ဧ	—ေ	as ကေ
အု—ု	as	ကု	အဲ	—ဲ	as ကဲ
အီ—ီ	as	ကီ	ရြော—ော	as	ကော
ဥ—ု	as	ကု	ရြော်—ော်	as	ကော်

Four of the consonants, also, are simgly or together united to other consonants by symbols to form syllables :—

ယ—ျ as ကျ—*kyă* , ရ and ဝ–ြ as ကြ—*krwă*
ရ—ြ as ကြ—*kră* ဟ and ဝ–ွ as ဟွ—*hmwă*
ဝ—ွ as ကွ—*kwă* ယ and ဟ–ျ as လျှ—*hlyă*
ဟ—ှ as မှ—*hmă* ရ and ဟ–ြ as မြ—*hmră*
ယ and ဝ as ျ ကွ-*kywă*

In pronunciation the sound of some of the consonants is, *euphoniæ causa*, changed according to their relation to the preceding consonant, but no change is made in the written character. All attempts at phonetic rendering are thus necessarily vain and the endeavours which have been made to establish a scientific method of phonetically writing Burmese words in English letters has shewn that *quot homines tot sententiæ*. *Niong*, *nyaung*, *nyoung* and *gnyoung* are all used for one word, ညောင်, and according to Dr. Mason duplicates and even triplicates of the same wood were sent to the exhibition of 1851 as products of different kinds of trees and differently numbered and named in the catalogue, e. g. *Ban-boay*, *Bhan-bhway*, *Ban-bwai* and *Ban-bwae* :—*Toung-bien*, *Toung-bhian* and *Toung-byeng* :—*Pyeng-kha-do* and *Pyeng-ka-deau*.

When a root or syllable beginning with any consonant but a flat mute is added as an additional syllable to a word ending with any consonant but a smooth mute the initial is changed to its corresponding flat mute as :—

ကင်းကော	*keng-kaw*	becomes in pronunciation		*keng-gaw*
ကျီးကန်	*kyee-kan*	,,	,,	*kyee-gan*
စံပါ	*tsa-pa*	,,	,,	*tsa-ba*
သပြေ	*tha-pyoo*	,,	,,	*tha-byoo*

but if the first syllable ends in a smooth mute the initial of the second syllable is unchanged, e. g. လက်ပန် *lek-pan*, စစ်ဆီ *tsit-tsa-lie*. When a word is formed from a verb and a noun the rule does not apply. When the word consists of three syllables the first ending with and the second and third commencing with smooth mutes the initial of the second only is changed to a flat mute, as ပဇွန်ဆိတ် *pa-tswon-tsiet* pronounced *pa-zwon-tsiet*.

A final nasal before a smooth mute is changed to that mute as မန်ကျည် *man-gyee* pronounced *mag-gyee*, ပန်တောင် *Pan-doung* pronounced *Pad-doung*. Before a flat mute the final nasal is changed to the nasal of the class to which the mute belongs, e. g. သင်္ဘော *theng-baw* is pronounced *them-baw*.

The vowel ă is inherent in every consonant and is pronounced except when the "*that*" or killing mark, ်, is affixed, thus တတ is *tă-tă* but တတ် is *tat* ; not only is the inherent ă in the final

consonant "killed" but, as no consonant can be pronounced without a vowel sound, the consonant itself is "killed", so that, as it were, an unsuccessful endeavour to pronounce it, only, is made and as far as the sound goes it might be written in English *tat* or *tap*: it has the effect of giving a short, sharp, abrupt termination to the syllable. In the case of some letters this "*that*" mark has the still further effect of changing the inherent ă of the first letter into another vowel, ကက is *kă-kă* but ကတ် is not *kak* but *kek*: ငင is *kă-ngă* but ငင် is not *kang* but *keng*: တတ is *tă-tsă* but တစ် is not *tat* but *tit*. In the case of ဆ, *tsă*, the "*that*" destroys the *s* as completely as it destroys the *ă*, because the *s* cannot be pronounced till the *t* has been, and the *t* having been 'killed' cannot be. This, it may be noted, is evidence to shew the existence of a *t* sound in the letter ဆ, and its aspirate ဆ, and in favour of transliterating it into *ts* and not into *s* simply, e. g. Tsit-toung and not Sit-toung. In the case of ည *gnyă* it entirely changes the sound of the letter sometimes into *ee* and sometimes into *ey*, e. g. သည is *thă-gnyă* but သည် is *thee* and ကုန်သည် is *koon-they*.

Arakanese.

The Arakanese are undoubtedly a branch of the Burmese race that separated off at a very remote period. They are "separated from the "parent stock by mountains which, except towards the southern "extremity of the range, admit of little intercourse from one side "to the other. Hence those Arakanese living in the northern "portion of the country, adjoining Bengal, have some peculiari-"ties in dialect and in manners. There they touch upon a people "totally different from themselves in race, in language, and in "religion. There the original Mongolian features of the people "have become considerably modified, the nose being more promi-"nent and the eyes less oblique than they are found to be among "the people of the south of Arakan and in Burma Proper."* By "natives of India they are called Mugs, a foreign term never used "by themselves": the word has been adopted by most if not by all writers who gained acquaintance with the people through others, or before the conquest of the country by the British in 1825; indeed it is still used in official documents in India. By Burmans of Pegu they are usually styled "Ra-khaing-tha" or "inhabitants of Ra-khaing", the Burmese name of the country of which Arakan is an English corruption. The origin of this name is given by Sir Arthur Phayre in the volume of the Bengal Asiatic Society's Journal to which I have already referred. "The word *Ra-khaing*"

* On the History of Arakan by Captain (now Lieutenant-General Sir A. P.) Phayre. Journal of the Bengal Asiatic Society vol. XIV. p. 24.

he says "appears to be a corruption of *Rek-khaik*, derived from "the Pali word *Yek-kha*, which in its popular signification means "a monster, half-man and half-beast which, like the Cretan "Minotaur, devoured human flesh. The country was named *Yek-* "*kha-pu-ra* by the Budhist Missionaries from India, either because "they found the tradition existing of a race of monsters which "committed devastation in a remote period, or because they found "the *Myam-ma* people worshippers of spirits and demons."

Although influenced in many ways by their northern neighbours of Chittagong they are yet very clearly differentiated and much more so than from the Burmans, and the Naaf still marks clearly the boundary between Turanian and Caucasian. In the extreme south of Arakan the people may almost be said to be Burmans whilst towards the north they differ in character, language and customs. There they are "coarser and more violent "tempered, have more of the pride of race and a concomitant in- "dolence."* The difference in language is only a difference in dialect; some words are different but the grammatical construction of the sentences is the same. It is an almost hopeless task to endeavour to give in English letters to Englishmen the sound of a word in a foreign language of which they are ignorant, but without this it is impossible to explain the difference in the dialect to any one who has not heard the two spoken. The spelling in both dialects is the same.

English.	*Arakanese.*	*Burmese.*
Day ..	... Rak ...	... Yek.
Betel-box	... Kwan-aik	... Kwon-iek.
Water	... Ri ...	... Ye.
Pony ...	... Mroung...	... Myeng.
Back-bone	... Roma ...	... Yoma.
He has gone back...	Pran-thwa-bree...	pyan-thwa-byee.

Tavoyers.

The Tavoyers consider themselves as descendants of Arakanese colonists and their view is supported by a general resemblance in character and by some peculiarities in their dialect which has many Arakanese provincialisms.

Khyoung-tha.

The Khyoung-tha are found in Arakan, partly in the Akyab district and partly in the Hill Tracts. They are undoubtedly, generally, of Burmese stock, but three of the seven classes into which they are divided, *viz.* Da-la, Moon-htouk and Rook, are said to be descended from Talaing who came over to Arakan with a Peguan princess who

* Census Report 1872, Appendix 1, p. 3.

was married to an Arakanese king in 1588 A. D., and this tradition is to some extent borne out by the names, for Da-la was a Talaing town and district on the right bank of the Hlaing opposite to Rangoon and Moon is the name by which the Talaing call themselves. "They are a quiet pleasant people, more like the Bur-"mese in disposition than the proud, indolent, overbearing "Arakanese."* Tattooing is practised but not as in Burma, the utmost being a few charms on the back and shoulders. The tattooing of the "breeches", described above, is unknown in practice and the ornamentations adopted, if ornamentations they may be called, are due to superstition as is the similar tattooing amongst the Burmans. Though professedly Booddhists yet spirit worship finds a much larger place in their hearts. The hair is worn in a knot, but farther back on the head than is the case with Burmans and modern Talaing, whilst it appears from Captain Lewin's account of those in Chittagong that by those found there it is worn at the back like a woman's. It is curious that, as recorded by Mr. St. John in the report alluded to above, "to "judge from the terra-cotta pictures on the Thatone pagoda "it was formerly the custom of the Talaing to wear their hair in "a large knot at the back of the head." The written character used was originally the same as that used in Burma and in Arakan but now in repeating the alphabet they call some of the letters by different names and the character used in their books, of rough paper cut to look like palm leaves, differs greatly from the Burmese form, and in the colloquial they have some provincial differences. Mr. St. John attributes this to the originals having been copied by Bengalis ignorant of the true characters. According to Sir A. Phayre they are a mere branch of the Arakanese which separated off from them after they had occupied Arakan, though he does not give his views as to how, when or why they separated from their countrymen, from whom they still to some extent keep separate, most of them preferring a hill life with its hardships to living in the plains.

There can be no doubt that the Burmese stock received its alphabet with its religion from India and it seems most probable that the Khyoung-tha are descendants of those Arakanese who had settled in the hills (who received but little Booddhism and but little civilization and adhered more to their primitive form of spirit worship which has kept them apart from the Arakanese, to whom they had, however, to look for their written characters)

* Report on the Administration of the Hill Tracts of Northern Arakan, 1870-71.

leavened by a slight intercourse with their western neighbours who were uninfluenced by the Booddhist theory of the imperfection of a man who has not been in a monastery for some period of his life, and, much later, by an admixture of Talaing. The name denotes simply " sons of the river".

Khami and Mro.

The Khami and the Mro, who in this Province are found only in the Hill Tracts of Arakan, are considered by Sir A. Phayre, Captain Latter and Mr. St. John to belong to the Burmese stock. These two tribes differ but slightly from each other in language and in customs. " Khami" is the Khami word for man. Writing of them Sir A. Phayre records that " This hill tribe belongs to the same great " family of the human race as the Myam-ma ; their language " being apparently of the same structure, and their physiognomy " alike ; they have black straight hair ; high cheek bones ; " oblique eyes ; and scanty beards. They appear in short like " Ra-khoing-tha (*Arakanese*) in a more rude state of existence". As regards the Mro he adds, " The history of the Arakanese " kings refer to this tribe as already in the country when the " Myam-ma race entered it. It states also that one of this race " was chosen king of Arakan about the fourteenth century of " the Christian era. The traditions also recorded in the same " work imply that the Mru (*Mro*) and Myam-ma races are " of the same lineage". Four or five generations ago " the " Khami dwelt on the mountain ranges to the north-east, but " being driven south-west by their more warlike neighbours the " Shandoo, gradually drove the Mro and Khyoung-tha down the " valley of the Kooladan.

Talaing.

In his History of Pegu, published in the Journal of the Asiatic Society of Bengal for 1873, Sir A. P. Phayre has given the results of his enquiries into the origin of this race and of the reasons for their appearance here ; these I quote at length as containing by far the most trustworthy account. " From tradition and such scanty " historical notices as have survived, we are led to look to the " east coast of India and especially to the country on the lower " courses of the Kistna and Godávéri, with the adjoining districts, " in other words ancient Kalinga and Talingána, as the countries " which, at a very remote period, traded with and colonized the " coast of Pegu. The people of Pegu are known to the Bur- " mese, to the Indians, and thence to Europeans by the name of " Talaing. This word is derived from Talingána, and the name " which was strictly applicable only to the foreign settlers has in

" the course of time become applied to the whole people.....
" The early establishment of a colony or city for trade on the
" coast of Rámanya* by settlers from Talingána satisfactorily
" accounts for the name Talaing. But the Peguans call them-
" selves by a different name. It remains then to be inquired
" whether we can trace from what race they are descended;
" whether, like the peoples around them——the Burmese, the
" Siamese and the Kareng——they belong to the Indo-Chinese
" family, a branch of the Mongoloids of Huxley, or come from
" another stock.

" The people of Pegu.. call themselves Mun, Mwun, or Mon.
" Their original language has almost disappeared. It is proba-
" ble that there are not now one hundred families in Pegu pro-
" per in which it is spoken as their vernacular tongue.† In the
" province of Martaban, however, including a portion of Maula-
" myaing‡ there are thousands who still speak the Mun language
" only.§ These are chiefly the descendents of emigrants who
" left Pegu in 1826 when the British army retired and occupied
" the Tenasserim territory. The Burmese since the conquest of
" Pegu by Alompra, (Alaung-phra)‖ in 1757-58 had strongly
" discouraged the use of the Mun language. After the war with
" the British the language of the people who had welcomed the
" invader was furiously proscribed. It was forbidden to be
" taught in the Budhist monasteries or elsewhere. The result
" has been that in little more than a century the language of
" about a million of people has become extinct.¶

" In physical appearance the Mun people are scarcely dis-
" tinguishable from the Burmese.$ They are, however, shorter
" and stouter and, notwithstanding their more southern position,

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* This was the name, in remote times, of the whole country from the Arakan mountains to the mouth of the Salween and shews the Indian influence.

† My experience as Deputy Commissioner of Rangoon leads me to think that this is slightly too low an estimate.

‡ More correctly " in portions of the Amherst district."

§ Here again my experience as Deputy Commissioner of Amherst leads me to think that there are comparatively few who speak Talaing only and cannot speak Burmese. There are, however, there, what do not exist anywhere else in Burma, monasteries in which Talaing and not Burmese is taught.

‖ Aloung-bhoora.

¶ Note by Sir A. Phayre. "There are, however, some thousands of the Mun people in " Siam who emigrated there towards the end of the 18th and in the early part of the 19th " centuries to escape the cruel rule of the Burmese. Descendants of Mun colonists from " Tha-htun were heard of by Dr. Richardson in April 1837 as being located on the northern " frontier of the Kareng-nee country."

I am very doubtful of the accuracy of Dr. Richardson's theory on this point which is discussed further on sub. tit. 'Toung-thoo.' [Edit.]

$ Pure Talaing, however, can and do grow whiskers, moustache and beard.

" are generally lighter in complexion than Burmese of the same
" class. Indeed the higher classes of the Muns, and those whose
" callings in cities and towns do not involve much exposure to
" the sun, are much fairer than those of the same classes in up-
" per Burma. This may be partly attributable to the large ad-
" mixture of Shan blood from Zemmai and the adjoining states,
" which occurred at a comparatively late period of their history.
" But there are also climatic causes. For about six months of
" the year, the sky of Pegu is more or less obscured with clouds ;
" and the habit of carrying umbrellas as a protection against the
" sun and rain, is much more common with the Talaings than
" amongst the Burmese. But the question of complexion among
" many Indo-Chinese tribes is certainly perplexing. Some of the
" Karen tribes in the mountains, especially the younger people,
" are not darker than southern Europeans, whilst those settled
" in the delta of the Erawati, are much the same in that respect
" as the Mun people among whom they dwell*. While then the
" physical characteristics among the Mun would lend us to class
" them with Indo-Chinese, their language points to a different
" conclusion. I believe this peculiarity was first brought to
" notice by the Reverend Dr. Mason, Missionary to the Karen
" people. That learned man has, in his work on Burma, pointed
" out the remarkable similarity between the language of the
" Mun of Pegu and that of the Horo or Mundá people of Chutiá
" Nagpúr, called the Kols.† The first syllable of the word Munda,
" which is used I understand to designate the language of several
" tribes in the western highlands of Bengal, rather than as a
" tribal name, is identical in sound with the race name of the
" people of Pegu. The connection of the two peoples as shown
" by the similarity of their languages in a series of test words
" has been commented on by the Honorable Mr. Campbell in a
" paper on the Races of India in the Journal of the Ethnological
" Society. We appear than to be forced to the conclusion that the
" Mun or Talaing people of Pegu are of the same stock as the
" Kols and other aboriginal tribes of India, who may have occupied
" that country before even the Dravidians entered it. Csoma de
" Köros, in his Tibetan dictionary, defines Mon as a general name
" for the hill people between the plains of India and Tibet.

* One of the things that struck me most when stationed at Bha-maw, 250 miles above Mandalay, was the ruddiness of the complexion of the Burmans whom I had only seen as dull-yellow skinned in the south and swarthy in and about Mandalay, and this ruddiness was still more remarkable in the inhabitants of the villages which I visited towards the north of the first defile. [*Edit*].

† See p. p. 160 *et seq.*

"Assuming that a people having that name once inhabited the "eastern Himalaya region and migrated to the south, we have "now no means of tracing whether the Mun of Pegu came direct "down the course of the Erawati or parting from their kinsmen of "the Kolarian tribes in the lower course of the Ganges or Brah-"maputra came through Arakan to their present seat. There "appear now to be no indications of their presence either in "Arakan or in the country of the upper Erawati; though more "careful enquiry into the languages of some of the wild hill "tribes between Arakan and Manipur might possibly show "their track. The Dravidians of Talingána who beyond all "doubt came by sea to the eastern shores of the Bay of Bengal "probably a thousand years before the Christian era, found the "Mun rude savages who even some five centuries later are called "*bhilu* or ogres. Yet the Dravidian colonists have merged into "the mass of that wild race. Their name indeed remains in the "word Talaing, but it is known only to foreigners and is not "acknowledged in the language of the people." The advent of the Dravidians and the establishment of colonies was no doubt of a much, a very much, later date than the arrival of the Moon. At pages 32 *et seq.* of the Journal Sir A. Phayre has recorded that. "The names given in the histories of Tha-htun and Pegu to the "first kings of those cities are Indian; but they cannot be ac-"cepted as historically true. The countries from which the "kings are said to have derived their origin are Karannáka, "Kalinga, Thubinga, and Bij-ja-na-ga-ran. These may be recog-"nized as Karnáta, Kalinga, Venga and Vizianagaram, on the "southeastern coast of India. * * * * * The word Talingána "never occurs in the Peguan histories but only the more ancient "name Kalinga. The names of the more prominent kings of "Tha-htun and Pegu all occur in Indian lists, and have probably "been selected as pertaining to orthodox Budhists, or as being "famous in early legend. Thus king Tik-tha, Ti-tha or Tissa, "of Karannáka whose sons are represented as first coming to "Tha-htun is probably the name of Asoka's brother Tishya. "The name frequently occurs among the early Budhist kings of "Ceylon. The elder son is called after his father with the affix "Kummá; while the name of the younger Dzá-ya is apparently "Ja-ya Sinha, the founder of the Chalukya race in Talingána "whom Sir Walter Elliot supposes to have lived in the early "part of the 5th century of the Christian era, and Mr. Fergus-"son about a century later. The eastern branch of this family "reigned in Vengidesa, which comprised the districts between

" the Godáveri and the Kistna below the ghâts, and eventually
" fixed their capital at Rajamahendri. In the history of Tha-
" htun, though the two sons of King Tik-tha become hermits,
" they adopt two sons, one of whom builds the city of Tha-htun
" and reigns there under the title of Thi-ha Rádzá. This name
" is probably derived from Raja Sinha, the posthumous son of
" Jaya Sinha above mentioned, who succeeded, after a struggle,
" to his father's power and whose birth and alliance by marriage
" with his enemies the Pallavas, the possessors of the country
" south of the Narbadá, are reproduced at Tha-htun in the dubi-
" ous birth of Thi-há Rádzá from a dragon's egg, though he is
" brought up by the hermit Dza-yá. The kings of the Chalukya
" dynasty who reigned for about five centuries, were of the lunar
" race and apparently worshippers of Vishnu. The establish-
" ment of this family caused the flight and exile of numbers of
" Budhists, or quasi Budhists, from the districts on the sea
" coast of Talingána. On this point Sir Walter Elliot has made
" the following remarks in a communication with which he has
" favoured me. 'There is no doubt the intercourse between the
" 'east coast of India, and the whole of the opposite coast of the
" 'Bay of Bengal and the Straits of Malacca was far greater in
" 'former times than at present. It had attained its height at the
" 'time that the Budhists were in the ascendant, that is, during
" 'the first five or six centuries of our era. The first great Bud-
" 'hist persecution both checked it and also drove great numbers
" 'of the victims to the opposite coast. The Tamil and Telugu
" 'local histories and traditions are full of such narratives. When
" 'the Chalukya prince, brother of the king of Kalyán was found-
" 'ing a new kingdom at Rájamahendri, which involved the root-
" 'ing out and dispersion of the pre-existing rulers, nothing is
" 'more probable than that some of the fugitives should have
" 'found their way to Pegu. One Tamil MS. refers to a party
" 'of Budhist exiles headed by a king of Mandu, flying in their
" 'ships from the coast' ".

It would appear then that the Dravidians came hitherward by sea nearly 2,000 years ago and found a savage race occupying the country and that this race was of Kolarian stock and had itself come from India, but whether by way of Arakan or down the valley of the Irrawaddy is uncertain. There can be no doubt that the western portion of Arakan from the foot of the Roma, the lower portion of the valley of the Irrawaddy from Akouk-toung southwards and the whole of the Kyaik-hto and Tha-htoon plains have gradually risen from the sea, not necessarily

by fluviatile deposit, and that the lower slopes of all the mountains, the Arakan and Pegu Roma and the Martaban hills, were once laved by ocean waves and formed mountainous promontories with vast inlets between them, and it would seen as if the Kolarians having entered from the north were gradually driven southwards by the Turanian influx from Thibet and occupied this newly formed country where they were found by the more civilized immigrants from Talingána. History and tradition alike tend to shew that there has been, if it may be so expressed, a steady "pushing" from the north.

The Dravidians who came by sea amalgamated with the wild race they found, but the process must have been very gradual: for several centuries before the Christian era the Talaing—that is the new comers—are known to have been found in a state then considered civilized and surrounded by wild tribes—the Kolarians—considered as barbarous and called Bheeloo or ogres.

In the Arakan histories the Talaing are said to have amalgamated with a race called Tho-doon, and it is not difficult to believe that "Tho-dôon" represents Tha-htoon.

How did this amalgamation take place; by fusion or by absorption and if by the latter, did the Talaing absorb the Moon or the Moon the Talaing? The name Talaing now given to this mixed race by their immediate neighbours is not acknowledged in the language but yet except amongst those few who do not habitually use Burmese it is the name by which they know themselves. To the question put by every magistrate and every civil judge as to the nationality of a witness whose evidence is to be recorded and whether that judge or magistrate be an Englishman, a Burman or a Talaing the reply of a Talaing is invariably "Talaing": but this is probably due to the fact of his using the Burmese language, Moon being a Talaing word.

The Talaing language has the intonations characteristic of the Chinese family but to a less extent. The roots are principally monosyllabic "but as in both Burman and Karen many are "formed on the polysyllabic principle: a consonant, most fre-"quently a smooth mute with its inherent vowel, constituting a "syllable without any signification in itself, being prefixed to a "monosyllabic root to form a new word".

As is the case with Burmese and Shan Talaing is written from left to right with no separation between the words and the alphabet is composed principally of circles or segments of circles. Nearly all the simple characters are the same as in Burmese and

many have the same sound. There are ten vowels, in composition represented by symbols, the first seven having the same sound as in Burmese but ◌ is *oa* as in *oar* and not *ai*, and ◌ is always *oo* and never *ou* as it is in Burmese when followed by a consonant as ◌ *moung*; whilst ◌ is always pronounced *ow*. The diphthongs and triphthongs are: ◌ and ◌ combined as in ◌ pronounced *kai* as in *aisle*; ◌ and ◌ as ◌ pronounced *too-e* or *twe*; ◌ and ◌ and ◌ as in ◌ pronounced *poo-e*; ◌ and ◌ as in ◌ pronounced *te-ow*; ◌, ◌ and ◌ as in ◌ pronounced *po-ai* (these are never followed by a final consonant) and ◌ and ◌ as in ◌ pronounced *kap* (always followed by a final consonant); with ◌ and ◌ the sound is *ai* as ◌ *kaik*. There are two more consonants than in Burmese viz. ◌ *ba* and ◌ *be-er*, both having the power of *b*, whilst ◌ *ng* is written ◌ but always ◌ when "killed". When initial it has the power of *gn*, the *g* being distinctly sounded. There is no other letter having any "g" sound.

The consonants, as regards their influence on the vowels, are divided into two classes. With the first, which comprises ◌, ◌, ◌, ◌, ◌, ◌, ◌, ◌, ◌, ◌, ◌, ◌, ◌, ◌, the vowels retain their own sound, but with all the rest are modified.

The modifications caused by the addition of a final "killed" consonant to some extent resemble those in Shan.

	Talaing.	Shan.	Burmese.
◌	*pak*	.. *pak*	.. *pek*
◌	*pang*	.. *kang*	. *keng*
◌	*pam* (as in *palm*)	...*not used*	...*not used*
◌	*peep*	.. *peep*	..*piep*
◌	*ket* (as in *Kate*)	...*not used*	...*not used*
◌	*kap* as in the French "*cap*" a *cape*	.. *keup*	.. *koop* (as in *cope*)

Like both Shan and Burmese it has numeral auxiliaries: e. g. ◌, *an owner*, is applied to men as ◌ *three men*; ◌ is applied to things in lumps as ◌ *one lump of earth*.

It is remarkable for its numerous compound consonants, many of which are not found either in Chinese or in Indo-Chinese languages. In Burmese only four consonants are ever compounded with others; in Talaing there are nine: as in Burmese compound consonants are pronounced as nearly as possible as one syllable.

Letters.	Symbols.	Combinations.	Powers.
◌	◌ or ◌	◌ or ◌	...*t'gnă*
◌	◌	◌	...*t'dă*

Letters.	Symbols.	Combinations.	Powers.
ϟ	⊥	ᢆᢆ	...*t'nă*
ᢆ	ᢆ	ᢆᢆ	...*t'mă*
ᢆ	ᢆ	ᢆᢆ	...*kyă*
ᢆ	ᢆ	ᢆᢆ	...*kră*
ᢆ	ᢆ	ᢆᢆ	..*klă*
ᢆ	ᢆ	ᢆᢆ	.. *kwă*
ᢆ	ᢆ	ᢆᢆ	.. *k'bă*
ᢆ	ᢆ	ᢆᢆ	...*hlă*

Nearly all the smooth and aspirated mutes, and the liquids, " are compounded with the nasals *m* and *n*; forming such com- " pounds as *km*, *khm*, *chm*, *chhm*, *tm*, *thm*, *dm*, *pm*, *phm*, *mn*, *kn*, " *khn*, *gn*, *lm*, *gm* and others. Some of these appear to be " abbreviations of polysyllabic words.

" The grammar of the language is exceedingly simple, the " subject usually preceding the verb used, the object following it, " as in English. Like all other Indo-Chinese* languages, gram- " matical distinctions are made by particles, prefixed or suffixed; " but these are much fewer in Talaing than in Tai *(Siamese)*, " Burmese or Kareng. Noun particles are usually prepositions as " in western languages."

e : g :	*padoa sa-ngee* or *sngee* :				... in the house	
	la-tǫo	,,	,,	,, ...	... on	,,
	smaw	,,	,,	,, ...	... under	,,
	ka-ta	,,	,,	,, ...	... before	,,
	leŏok-ka-reŏw		,,	...	... behind	,,

" In its vocables, the Talaing is the most isolated language in " Further India. Its roots are not allied to Tai, Burman, Karen, " Toung-thu, Kyeng, Kamee, Singpu, Naga, Manipuri or any other " language spoken by the Indo-Chinese nations.†

" Nor is it cognate with the Chinese or Tibetian or any " other of the Tartar tongues of which specimens have been pub- " lished. It is not related to the Sanscrit or Hindee families of " northern Hindustan; nor to the cultivated dialects of southern " India and Ceylon, the Taluka, Carnataka, Tuluva, Tamil, Mala- " yalam, Malabar and Singalese. I have compared the Talaing

* It is not quite clear whether Dr. Mason uses the term 'Indo-Chinese' in its geographical or in its ethnological sense; from the sequel it would seem to be in the former.

† Note by Dr. Mason "I have not been able to obtain any specimens of the language of Cambodia for comparison; and cannot, therefore, affirm or deny anything respecting that".

" with vocabularies of all these and others, and find it radically " different, though here and there words of apparently common " origin may be discovered. Whence then has it been derived? " In central Hindustan there are several wild tribes inhabiting " the mountainous regions, which are called Koles, Oraons, and " Goands embracing various sub-tribes known as Sontals, Bhumi- " jas, Mundalas, Rajmahalis, and by other names, whose languages " seem to have had a common origin". The learned doctor then refers shortly to a paper by Major Tickell and continues, " This " paper affords the most complete view of the people and their " language that has yet been made public; and from this it is ap- " parent, singular as it may seem, that the Talaing language has a " radical affinity with the Kole. The first six numerals, the " personal pronouns, the words for several members of the body " and many objects of nature, with a few verbs are unquestionably " of common origin, while many other words bearing a more re- " mote resemblance are probably derived from the same roots". The following brief vocabulary is given for comparison.

English.	*Talaing.*	*Kol.*
man	.. mnee	..male (R)
head	...kdap	.. kupe ,,
eye	.. maup	.. met (S. K.-S.-Bh)
ear	.. kto	...khetway (R)
hand, arm	.. oa	.. thi (S. K.-S.-Bh)
foot	.. jaing	.. subtijanga (S)
mother	... { yoa mee	.. aya (R) .. mai (Bh)
bone	.. joot	.. jang (S. K.-S.-Bh.-M.)
oil	..kleeng	.. ning (G)
tiger	...kla	.. kula (S.-Bh.-M.)
hog	.. kleek	.. kis (O.-R.:) sukri (S. K.-S.-Bh.-M.)
fish	.. ka	.. haku (S.-K.-S.-M.)
earth	.. tee	.. ote (S. K.-S.-Bh.)
mountain	.. do	..dongar (G); toke (R)
stone	.. tmaum	.. tongi (G)
water	.. dai	.. dah (S. K.-S.-Bh.-M.)
weep	.. yaum	.. raiman (S. K.), ragman (S.), eyamman (Bh)
hear	.. meeng	.. mena (R)
take	..ket	.. kinda (R)
fat	.. kraun	.. kiriena (S. K)
thin	.. sree	.. serua (O)
hunger	.. klow	.. kire (R)
I	...oa	...aing (S. K)
thou	.. mna	..um (S. K.-Bh.-M.), umge (S), nin (O.-R.), [imma (G)
he, she, it	.. nya	..ini (S. K.-Bh.-M.)
this	...naw	.. noa (S), nea (S. K)
one	...mooa	...moy (Bh)
two	...ba	...barria (S. K.-S.-Bh.-M.)
three	. pee	.. pia (S), apia (S. K.-Bh.-M)
four	.. paun	.. ponia (S), upunia (S. K.-Bh.), upnia (M)
five	..msoon	.. monaya (Bh), moya (S.K.), mone (S), mosia(M.)
six	.. trow	..turia (S. K.), turui (Bh), turuya (Bh.) M)

In this list S. K. stands for Singbhum Kol: S. for

Sontal: R. for Rajmahali: G. for Gond: Bh. for Bhumij: O. for Oraon: and M. for Mundala.

In dress, manners, habits and system of cultivation the Talaing differs little from the Burman, but there is an indefinite something in the physiognomy which, if the blood is tolerably pure, enables any one who has resided for sometime in the country and has had much to do with the people to decide, generally with accuracy, whether a man or a woman is of Talaing or of Burmese race.

Though the Talaing have been Booddhists during so many centuries yet they are exceedingly superstitious. The worship of Nat, and particularly the propitiation of evil ones, is the prolific source of numerous strange observances. Every untoward event, every disease, in fact all that causes pain or threatens danger is attributed to the agency of wicked spirits. This belief opens boundless opportunities to sorcerers, conjurers, reputed witches and crafty men and women, who thrive on the credulity of the ignorant masses. The original worship has not been entirely uprooted by the adoption of Booddhism but by a kind of tacit compromise the two have continued side by side on a footing of perfect tolerance.

Kareng.

The Kareng have no one distinctive name for themselves and to them the Burmese word "Kareng" is unknown except as being their name in Burmese. The nearest approach to it is Ka-ya the name by which the Kareng-nee or Red Kareng call themselves, and Ka-yay by which some of the Bghai clans are known amongst themselves.

The Burmese, whilst using the word Kareng to designate the race generally, clearly recognize that there are differences in the various tribes and we hear of Myit-tho (river sheep) and Burmese Kareng; of Myit-khyeng (river Khyeng) and Talaing Kareng; of Kareng Taw-bya (forest bees); of Kareng Bhee-loo (ogres); Kareng-nee (Red Kareng); of Kareng Liep-pya-gyee (large butterflies) and Kareng Liep-pya-ngay (small butterflies); and Kareng ayaing (wild Kareng); names by which Burmans describe the different tribes and clans.

Undoubtedly not of the same race as the Burmans or as the Talaing it is certain that they are not the aboriginal inhabitants of the country now known as Burma. "In my early travels" wrote the late Dr. Mason "the Karens pointed out to me the pre-
"cise spots where they took refuge in the days of Alompra
"*(Aloung-bhoora)* and where they had come down and avenged
"themselves on their enemies; but when I asked them
"'who built this city?'—as we stood together on the forest

" clad battlements of a dilapidated fortification—they replied
" 'These cities of our jungles were in ruins when we came here,
" 'This country is not our own. We came from the north, where
" 'we were independent of the Burmese, and the Siamese, and the
" 'Talaing who now rule over us. Then we had a city and a
" 'country of our own near Ava, called Toungoo. All the Karens
" 'of Siam, Burmah, and Pegu came originally from that region'.
" When I asked for the time of their dispersion they were silent.
" The fact was clearly before them, but the retrospect was too
" obscure to determine the distance. Yet they saw far beyond
" Toungoo. On the edge of the misty horizon was 'the river of
" 'running sand', which their ancestors had crossed before coming.
" That was a fearful trackless region where the sands rolled before
" the winds like the waves of the sea. They were led through it
" by a chieftain who had more than human power to guide them."
The journal of the Chinese pilgram Fa Hian, who visited India in the early part of the fifth century, explains what this river of running sand is. He describes the great desert of Gobi, which extends from Mongolia to Yarkand and from Dzungaria to Thibet.
" The Governor of the 'Town of sands", he says, furnished his party with " the necessary means of crossing the 'River of Sand'.
" There are evil spirits in this River of Sand and such scorching
" winds that whoso encountereth them dies, and none escape.
" Neither birds are seen in the air, nor quadrupeds on the
" ground. On every side as far as the eye can reach, if you seek
" for the proper place to cross there is no other mark to distin-
" guish it than the skeletons of those who have perished there;
" these alone seem to indicate the route ".

The Kareng " traditions point unquestionably to an ancient
" connection with China, for Tie or Tien is spoken of as a god
" inferior to Jehovah, and offering to the manes of their ancestors
" is as common amongst the Kareng as it is amongst the Chinese."
" The hill tribes of China" writes Mr. Knowlton, a Missionary in China (*apud* Mason:—Burma. p. 70) "are generally termed Miau-tsi
" that is children of the soil, or aborigines. Our knowledge of
" them is very imperfect, being derived from the lowlanders with
" whom they have been more or less at variance from the dawn of
" Chinese history. Glimpses of them as they now exist are
" afforded occasionally in the documents known as the *Peking*
" *Gazette.* In a recent number of that publication there was an
" appeal to the Emperor from the hereditary chieftain of several
" aboriginal villages in the district of Lushan, Yachan prefecture,
" bordering on Thibet, against the laird of another group of vil-

" lages. To a foreigner the main point of interest in the litiga-
" tion is the charge of heresy and rebellion, brought by one party
" against the other. What they mean by heresy we have, unfor-
" tunately, no means of knowing. We know that Budhism has
" made little or no progress among these simple worshippers of
" nature. The are not idolaters and it was probably owing to the
" iconoclastic nature of the Taiping insurgents that so many
" Miau-tsi joined them in Hunan".

The Kareng in physical appearance and in their method of cultivating land approximate to the Miau-tsi it is said, but this as regards their appearance is denied by Colonel McMahon, and the system of cultivation is such as is carried on by all hill tribes in Indo-China: the hills are not terraced, but the forests on the mountain sides are cut down, the whole mass of timber and grass is burned and the seed is sown in the ground among the ashes. As the next rains wash away the fertile vegetable soil another crop cannot again be raised on the same spot for some ten or fifteen years, and each village, always small and rarely containing more than from 30 to 40 houses, requires a wide extent of mountain land in order to have a sufficiency of culturable spots.

They have traditions of the creation and fall of man coinciding minutely with the Scriptural account, even preserving the names of Adam and Eve, and of the deluge.

" Where do we find in the traditions of heathen nations that
" never saw the Bible biblical facts so accurately stated as in the
" following stanzas*.

" Anciently God commanded, but Satan appeared bringing destruction.
Formerly God commanded, but Satan appeared deceiving unto death.
The woman E-u and the man Tha-nai pleased not the eye of the dragon.
The woman E-u and the man Tha-nai pleased not the mind of the dragon.
The dragon looked on them—the dragon beguiled the woman and Tha-nai.
How is this said to have happened?
The great dragon succeeded in deceiving—deceiving unto death.
How do they say it was done?
A yellow fruit took the great dragon, and gave to the children of God.

* Mason's Burma p. 73.

A white fruit took the great dragon, and gave to the daughter and son of god.

They transgressed the commands of God, and God turned his face from them.

They transgressed the commands of God, and God turned away from them.

They kept not all the words of God—were deceived, deceived unto sickness.

They kept not all the law of God,—were deceived, deceived unto death".

The Kareng-nee again have very similar traditions. Their name for God is Ea-pay.

" The earth at its origin, ...Ea-pay created.
The heavens at their orign, ...Ea-pay created.
Man at his origin, ...Ea-pay created.
The sun at its origin, ...Ea-pay created.
The moon at its origin, ...Ea-pay created.
The trees at their origin, ...Ea-pay created.
The bamboos at their origin, ...Ea-pay created.
The grass at its origin, ...Ea-pay created.
The cattle at their origin, ...Ea-pay created".

" The absence in all their traditions of any allusion to anything " peculiarly Christian, proves that they never had the New Testa- " ment among them, and if these traditions are derived from a " written source, that source must have been the old Testament".

Now of late years Jewish villages, or what are believed by the missionaries to be Jewish villages, possessing the Pentateuch have been found in Chingfu not for from Lushan, the supposed former seat of the Kareng. It would be exceedingly interesting to ascertain if the Miau-tsi have any traditions similar to those of the Kareng, for if so this would form a strong link in the chain of evidence to shew that the Kareng came down from the north of China: the lost ten tribes are so often being found, that one becomes sceptical but it is possible that some of the Chinese tribes may at some time have come in contact with believers in the old Testament and have imbibed some portion of their belief which these latter carried with them when they passed down from the great central plateau in some far away prehistorical period, as they probably did.

But how is this exodus of the Kareng from China to be reconciled with their tradition of having lived somewhere near Ava? If they left China they did so before Booddhism had spread or perhaps on account of its spreading, and we know that it was

introduced into China during the first century of the Christian era. There is a Kareng tradition that their leader came over first with an exploring party and selected the region about the present La-bong and Zengmai, i. e. on the east of the Salween, but on his return with his nation he found it occupied by the Shan. Now according to Shan history La-bong was built in 574 A. D.

It would seem then as if the Kareng have three times emigrated, once from the central plateau, once from northern China in about the second century when they settled somewhere near Ava, and again in the fifth or sixth century, when they came down southward and spread over the mountains between the Irrawaddy, the Salween and the Meinam as far south as the sea board.

The race is divided into three tribes, and these again into clans, distinguished by their dress and by their dialect.

I. Sgaw.—So called by themselves.

(*a*)	called	*Myit-tho*	by Burmese.
(*b*)	„	*Shan*	„ Pwo.
(*c*)	„	*Pa-koo*	„ Kareng-nee.
(*d*)	„	*White Kareng*	„ Some English writers.
(*e*)	„	*Burmese Kareng*	„ English writers and by Burmese and Talaing in Bassein, Thoon-khwa and Rangoon.

1.—Ma-nee-pgha.
Found in Toung-ngoo; one of the few septs that have any domestic animals besides fowls and swine. By some they are considered a portion of the Pwo tribe on account of the nasal sound of their dialect. The majority are now Christians.

2.—Pa-koo. *Dress.*—White tunic or blouse without stripes and with a narrow border of embroidery at the bottom, the patterns differing in every village. The dialect is closely allied to that of the Pwo but wants the final consonant. Like those of other tribes they keep in their houses stones which they believe to possess miraculous powers: the peculiarity amongst the Pa-koo is that their stones are supposed to cause the death of an enemy whose foot print is struck with one. Over 2000 have embraced Christianity.

3.—We-wa. *Dress.*—Of all kinds. Their dialect is a mixture of that of the Pwo, whence their name *We-wa* meaning backwards and forwards. They are in a very low stage of civilization; until latterly the women did not know how to weave, whence their nondescript dress.

II. Pwo.—So called by the Sgaw: the name by which they are generally known, sometimes written *Pgho.*

(*a*)	called	*Sho*	by themselves,
(*b*)	„	*Myit Khyeng*	„ some Burmese.
(*c*)	„	*Talaing Kareng*	„ „ „ and by some English writers

1.—Mo-pgha.—So called by the missionaries: the name by which they are generally known.

(*a*) called *Taw-bya* by Burmese.
(*b*) „ *Pie-do* „ some of themselves.
(*c*) „ *Pie-zaw* „ „ „ „
(*d*) „ *Plaw* „ „ „ „

Dress.—White blouse with red *perpendicular* lines. Found in a few villages in Toung-ngoo. They have two or three different dialects and hence the names (*b*), (*c*) and (*d*) given above, all calling themselves by their term for man (*homo*). They sacrifice a *black* bullock to the Lord of the earth. Their morality is exceedingly strict and stern. Many have embraced Christianity.

2.—Ta-roo. So called by the Kareng-nee; the name by which they are generally known.

(*a*) called *Koo-hto* by themselves.
(*b*) „ *Pa-doung* „ the Gai-kho.
(*c*) „ *Bhee-loo* „ the Burmese.

Dress.—very short trowsers: the women wear short togas and besides the brass coils round the neck and below the knee which distinguish some of their neighbours they wear brass coils above the knee also. The men shave the head leaving a long tuft of hair on each temple. Their dialect shews that they are of the Pwo tribe. They are peaceable except amongst themselves.

3.—Shoung. *Dress.*—White trowsers with radiating red lines at the bottom. They are found near the northern borders of Toung-ngoo. Before the annexation a number of their villages were exempted from all taxation on condition of their keeping up a watch against the incursions of the Kareng-nee.

4.—Ha-shwie. So called by the Bghai; the name by which they are generally known.

(*a*) called *Ha-shoo* by themselves.

Dress.—Trowsers. Found in northern Toung-ngoo. They are a tall, slender, active and warlike race: the women are ugly, ignorant and degraded.

5.—Gai-kho. So called by the Bghai; the name by which they are generally known.

(*a*) called *Ka-roon* by themselves.
(*b*) „ *Pra-ka-young* „ „
(*c*) „ *Pa-doung* „ the Kareng-nee.

Dress.—Trowsers of silk and often handsomely embroidered; red lines at the bottom radiating like the rays of the rising sun. They are fierce and savage and consider themselves as superior to all other Kareng. The men are stout, tall and muscular daring in adventure and warlike in disposition; the women are large and fair, and often with with ruddy complexions. They have two distinguishing pecularities—their hatred of ponies and of elephants, which are not allowed to enter their

villages and for which they will neither provide nor sell fodder, and the custom, now dying out, of burying a slave with every deceased slave-holder and elder.

III. Bghai. So called by the Sgaw; the name by which they are generally known.

(*a*) called *Pye-ya* by themselves.

1.—Kareng-nee. So called by the Burmese.

(*a*) called *Red Kareng* by the English,
(*b*) „ *Yang-aing* „ the Shan.
(*c*) „ *Ka-ra* „ themselves.
(*d*) „ *Pra-ka-ra* „ „
(*e*) „ *Bghai-moo-hte* „ other Bghai.
(*f*) „ *The-pya* „ the Gai-kho.

Dress.—Red trowsers with perpendicular, very narrow, black or white stripes; sometimes white with black or red stripes: turban bright red. They occupy the country north of British territory and are there divided into eastern and western Kareng-nee, each perpetually at feud with the other. Some have emigrated into British territory. They are very ferocious, preying without mercy on their neighbours, a practice to a great extent abandoned by the western Kareng-nee. Those who have come into British territory have to be regularly watched as they commit dacoities and robberies whenever they can. If caught they confess readily but are true as steel to their comrades. The have settled even so far south in the delta of the Irrawaddy and in the Amherst district, but few of them remain more than three or four years.

2.—Bghai-ka-tew.

(*a*) called *Tunic Bghai* by the English.
(*b*) „ *Liep-pya-gyee* „ the Burmese.

Dress.—White tunics with perpendicular red stripes. They have a few villages, all in Toung-ngoo.

3.—Bghai-ka-hta.

(*a*) called *Pant Bghai* by the English.
(*b*) „ *Kareng-a-yaing* „ the Burmese.
(*c*) „ *Liep-pya-ngay* „ „

Dress.—White trowsers with red radiating lines worked in them at the bottom. They inhabit the western slopes of the hills between the Salween and the Tsit-toung near the frontier. The inhabitants of the villages nearer the plains are to some slight extent civilized but those of the villages in the interior are comparatively in a state of barbarism. They are fond of dogs flesh which they eat without salt.

4.—Lay-may. So called by the Burmese.

(*a*) called *Pray* by the Kareng-nee.
(*b*) „ *Brec* „ „

They go about almost naked. They are the Ishmaelites among the Kareng and are savage, treacherous and ignorant.

5.—Ma-noo-ma-naw. *Dress.*—Trowsers. Little is known of them.

6.—Tshaw-kho. *Dress.*—White trowsers ornamented with red or black stripes.

The Kareng language is monosyllabic, and has, consequently, no inflexions, but it is amply provided with suffixes and affixes. " There are affixes for number and gender; the case is distin- " guished in some instances by position, as the nominative and " accusative; in others by affixes as the vocative; and in others " by prefixes as the dative and ablative. There are auxiliary " words equivalent to prepositions; the comparative and superlative " degrees of comparison of adjectives are distinctly marked by " affixes; and there is no want for either personal, reflective, " possessive, interrogative, demonstrative, distributive, reciprocal, " indefinite or negative pronouns. The demonstratives often cor- " respond, in their usage, to the definite article in other languages, " and they are affixed in the manner that the emphatic state is " formed in Chaldee. Like the Hebrew and Greek articles they are " used with 'objects previously mentioned or already known'. " Thus *aggelos* in Luke I: 11, is rendered in Kareng 'an angel' " or 'one angel' without an affix, but *to aggelos* in v. 13 is " rendered 'the angel' with a demonstrative affixed..... In Kareng " .. ..there is a particle which is equivalent to a relative pronoun, " whenever the antecedent and relative are construed together " without intervening words, but in all other cases the language is " destitute of a relative .....The Kareng has particles to express, " when attached to verbs, three voices, active, middle and passive; " five moods, indicative, comparative, potential, optative and sub- " junctive; three tenses aorist, perfect and future; three persons " and two numbers There are particles to express many other " relations under which a verb may appear, resembling Greek " prepositions * * * * The usual arrangement of words in a sen- " tence is that of *subject—copula—predicate;* or, when the predicate " consists of the verb with its object, *subject—verb—object.* Ad- " verbial designations may stand either before or after the verb; a " negative stands immediately before it, except one form of the ne- " gative in Pgho and Red Kareng which stands immediately after the " verb. Adjectives usually follow the nouns which they qualify. " The nominative case usually follows the verb and the accusative " sometimes, but rarely, precedes it. Any part of the sentence, " however, may be placed first and made prominent by putting it " in the case absolute * * * * Adversative, exceptive, causal " and hypothetical clauses are placed before those on which " they depend; while the illative follows, and the inten- " tional and comparative may either precede or follow. Nouns

" are repeated to denote multitude * * * Sometimes they are " repeated to express distribution thus 'he gave to one person a " 'small cup, to one person a small cup' that is he gave a small " cup to each person. Repetition with a conjunction denotes " diversity; thus 'one person and one person' signifies different " persons. Verbal roots repeated denote emphasis; thus 'go " 'quick, quick' signifies 'go very quick' * * *. Words that " imitate the sound of the act are often repeated after verbs and " similar reduplications are often used for emphasis when, from " the nature of the case, they cannot be imitative of sound. * * *

" Many words are formed from a single root and in others two " or more roots are compounded to form a word differing in signi- " fication from either. Thus, from

" ew	*bad*	and	law *descend*	is formed	ewlaw	*degenerate.*
" sgha	*few*	"	" "	"	sghalaw	*lessen.*
" a	*many*	"	taw *ascend*	"	ataw	*increase.*
" ma	*make*	"	boo *paddy*	"	maboo	*harvest.*

" Roots may be compounded in this way to any extent * * * * It " is a further principle in the language to form the names of the " parts from the root that designates the whole. In this manner " from the name of a member of the body are formed all the " parts of that member for which separate words are usually found " in other languages. Thus soo *arm* with new-kee *corner* forms " soo-new-kee, *elbow*; with la *leaf* it forms soo-la the *hand*; with ko, " *head* it forms soo-ko the *fist*; and so on to the amount of more " than forty words designating some part of the hand or arm. In " a similar way more than twenty words are formed from the " syllabic root that denotes the eye; and so with words that de- " signate other parts of the body. In Kareng many new roots " are formed by prefixing to other roots one of the smooth mutes " with its inherent vowel, k', ts' (or s'), t', p'. Thus from *oo*, the " cry of a monkey, is formed k'soo *groan*; and from ma-ee, play on " wind instruments is formed k'-ma-ee, *make melodious sounds.* * * * " The Kareng is remarkable for using words in pairs in the signi- " fication of one of the two. Thus *naw* grass, takes for its couplet " *mie* or *mieng*, wild [things] hence:—

" 1 *klaw* [weed] *naw, klaw mie* weed the grass.
" 2 *klaw, naw mie* "
" 3 *klaw naw* "

" where the three forms have by usage the same signification, " though literally they read:—

1 weed the grass, weed the wild [things]
2 weed the wild [things]
3 weed the grass.

" * * * * The paired word is often chosen from some resemblance " or association with the significant term, as :—

Ta-oo, ta-khie	cloud, darkness, for *ta-oo* cloud.
Ta-khie, ta-na	darkness, night, „ *ta-khie* darkness.
Dee, gnya	frog, fish for *gnya* fish.
Ta-hpie, ta-gnya	skin, flesh for *tagnya* flesh.

" Sometimes the couplet is a foreign word signifying the same " thing, as :—

Klaw nwa	the bos genus, where *nwa* is Burmese.	
Htie noung	water	where *noung* is the Siamese *nam.*
Hew-khoung	man	where *khoung* is the Siamese *man.*
Maw-htaw bhoora	pagoda	where *bhoora* is Burmese.

" Sometimes a couplet regarded as destitute of signification proves " as our knowledge of the language extends, to be a significant " word, thus:

" *Tshoo* the couplet of *tska*, to be sick, was regarded as of no " signification till the Bghai was acquired, where it signifies fovor".

Each clan has its own dialect but all those known resolve themselves into two classes. Those with final consonants and those without them. The Sgaw and Bghai have no final consonants ; the Pwo has.

Sgaw and *Pwo.* " The most marked characteristic of the " Pwo is a final nasal *ng* when the roots in Sgaw, and most of the " other dialects, have final vowels, as :—

Sgaw,	*Te*	To form, create	Pwo	*Taing.*
„	*Nie*	margin	„	*Naing.*
„	*Tshe*	a tunic	„	*Tshaing.*
„	*E*	to bite	„	*Aing.*
„	*Htaw*	to ascend	„	*Htaing.*
„	*Law*	to descend	„	*Lang.*

" Pwo often takes an aspirate where Sgaw has a smooth mute, " as :—

Sgaw	*Ka*	to break	Pwo	*Kha.*
„	*Tso*	to carry	„	*Tsho.*
„	*Too*	to receive	„	*Htong*.*
„	*Pla*	to dismiss	„	*Hpla.*

" A middle or flat mute in Sgaw often becomes a rough or smooth " mute in Pwo, as :—

Sgaw	*Die*	cucumber	Pwo	*Htie.*
„	*Ble*	to be smooth	„	*Bhle.*
„	*Dway*	grass hopper	„	*Htway.*
„	*De*	a branch	„	*Htaing*.*

* Both aspirate and final nasal *ng*.

" Occasionally it is the reverse, as :—

Sgaw	*Tau*	to strike	Pwo	*Do.*
„	*Htie*	to see	„	*Da.*

" A formative smooth mute in Sgaw is often wanting in Pwo, as :—

Sgaw	*Kana*	to listen	Pwo	*Na.*
„	*Kaman*	spleen	„	*Mang.*
„	*Mookanaw*	a maiden	„	*Moonang.*
„	*Sakho*	mango	„	*Kho.*
„	*Thapew*	chatty	„	*Hpung.*
„	*Thadie*	gall bladder	„	*Die.*

" The Sgaw *gny* is not found in Pwo, *y* usually supplying its " place, as :—

Sgaw	*Gnya*	before	Pwo	*Ya.*
„	*Gnyaw*	to be easy	„	*Yaw.*
„	*Ragnyaw*	to refuse	„	*Kayang.*
„	*Thakagnyaw*	mercy	„	*Yangtha.*

Bghai.

Bghai. The most marked peculiarity in Bghai is in its numerals. The names of the first five are almost identical with the Sgaw, but in

Sgaw	six	is	and in Bghai	*thew-tho*	literally three couple.				
„	seven	„	„	„	*thew-tho-ta*	„	„	„	one.
„	eight	„	„	„	*twie-tho*	„	four	„	
„	nine	„	„	„	*twie-tho-ta*	„	„	„	one.

There is nothing parallel to this in any language or dialect of the surrounding tribes or people.

The difference between the Sgaw and the Bghai is often only a change of vowels, but there are a large number of roots in Bghai not found in Sgaw or Pwo, as :—

Bghai	*Die*	year	Sgaw	*Nie.*
„	*De*	boiled rice	„	*Me.*
„	*Kiękay*	evil	„	*Ew.*
„	*Na*	straight	„	*Lo.*

Red Kareng differs from the ordinary Bghai by having a *v* in common use and by a change in the particles. Many of the roots though of common origin are subject to peculiar changes, thus *gh*, which represents the Arabic *ġ*, *ghain*, is very common in Sgaw and Pwo but in Bghai is often changed to *w* and in Red Kareng is nearly uniformly *r*, thus :—

Serpent	is *ghoo*	in Sgaw	*woo*	in Bghai	*roo*	in Red Kareng.
Ratan	„ *ghie*	„	*wie*	„	*rie*	„
Good	„ *ghe*	„	*we*	„	*re*	„
Cold	„ *gho*	„	*waw*	„	*raw*	„
Buy	„ *pghe*	„	*pghe*	„	*pre*	„

The Pwo Kareng tribes in the country north of British Burma appear to use dialects of Pwo and the dialect of those on the east

differs from that of those on the west especially in having an *f* whilst throughout there are sibilants unknown to Pwo: the place of *th* is supplied by *t* and as in Red Kareng *gh* passes into

The Mopgha is more intimately related to the northern than to the southern Pwo. It has the *f* and the peculiar sibilants of the former and like that uses *t* forth.

Several words in other dialects which are formed of *m* followedby a vowel have the same consonant preceded by a vowel in Mopgha, as :—

Mopgha	Pwo	Sgaw	Bghai	English
Am	*Mo*	*Mo*	*Mew*	*Mother.*
Em	*Mieng*	*Mie*	*Mie*	*Name.*
Oom	*Mook*	*Moo*	*Maw*	*Happy.*
Lem	*Moong*	*Thamoo*	*Thamo*	*Live.*

" When these words are preceded by another word with an inhe-
" rent vowel the inherent vowel is dropped and the consonant is
" united with the vowel of the root, as :—

Dza	my and	*am*	mother	become	*Zem*	my mother.
Na	thy „	*am*	„	„	*Nam*	thy mother.
Na	thy „	*oompo*	musket	„	*Noompo*	thy musket.

" When the first word is followed by a distinct vowel the initial
" vowel of the second word is dropped, as :—

Kay	our and	*am*	mother	become	*Kaim*	our mother.
Nai	your and	*am*	„	„	*Naim*	your mother.

" Words with a final *v* are subject to the same rule ; as :—

Latoo	a city and	*av*	in,	become	*Latoov*	in the city.
Panay	a buffalo and	*av*	„		*Panaiv*	in a buffalo.

Shan.

The Shan are immigrants who have appeared in the lower portions of the valleys of the Tsit-toung and of the Irrawaddy of comparatively late years. By themselves they are called Tai. The Revd. J. N. Cushing has paid much attention to the Shan and their ethnology and language and has been good enough to read these notes and to furnish me with corrections : indeed I may say that they have his imprimatur, than which none could be stronger. " The name
" Tai", he says, in the introduction to his grammar of the Shan language, " is appropriated by each division, except the Siamese
" who use the aspirated form and call themselves Htai * * * This
" name is said to mean free. Bishop Pallegoix says that 'proba-
" 'bly during the reign of phra : Ruang who shook off the yoke
" 'of the Cambodians in the year 1000 of the era of phra :
" 'Khôdŏm, the Siamese assumed the title of thăi, free, and,
" 'therefore, call their language phasá thăi or language of the

" 'free.' If 'free' was the original signification of the name " applied to the whole family, the northern divisions have lost it " in the unaspirated form. Many inquiries which I have made in " different parts of the Shan country which I have visited have " failed to obtain any evidence that the same meaning is attach- " ed to the name by the Shans as by the Siamese; neither have " I been able to elicit any satisfactory explanation of the word " from the Shans. It may be, that the Siamese changed the " form of the name by adopting the aspirated *t* so as to have it " embody a meaning commemorative of some great event in their " history. As the unaspirated form of the name is employed by " all the divisions of the Tai family except the Siamese, it is " natural to suppose *that* to be the original form, until some posi- " tive evidence to the contrary can be adduced." They are the most extensively diffused, and probably the most numerous, of the Indo-Chinese races, lapping the Burmese round from north-west by north and east to south-west, they are found from the borders of Munnipoor (if the people of that valley have not been indeed, themselves modified by Shan blood) to the heart of Yunan, and from the valley of Assam to Bankok and Kamboja; every where Buddhist, every where to some considerable extent civilized, and every where speaking the same language with little variation; a circumstance very remarkable amid the infinite variety of tongues that are found among tribes in the closest proximity of location and probable kindred throughout those regions. This substantial identity of language appears to indicate that the Shans had attained at least their present degree of civilization, and a probability of their having been united in one polity, before their so wide dispersion and segregation. The traditions of the Siamese as well as of the northern Shans, speak of an ancient and great kingdom held by this race in the north of the present Burmese empire, and of these traditions the name of 'Great Tai' applied to the people of that quarter, appears to be a slight confirmation. Some fatal incoherence has split the race into a great number of disconnected principalities, and the kingdom of Siam is perhaps, now the only independent Shan state in existence.

Colonel Yule suggests that possibly the northern Shan kingdom may have been that of Pong or Mogoung of which Captain Pemberton has given some account, in the existence of a Pong kingdom so close to Burma, Colonel Horace Browne declines to

* Report on the eastern frontier of British India by Captain R. B. Pemberton, Calcutta 1835. p. p. 108 *et seq.*

believe. In a note to be found on page 33 of his *Gazetteer* of Thay-
" et-myo, he remarks Dr. Anderson in his Expedition to Yunan" has
" described what he calls the ancient Shan kingdom of Pong, his
" materials being derived from a manuscript chronicle obtained by
" Captain Pemberton. In Burmese history, however, there is
" nothing whatever which would justify the supposition that such
" a monarchy ever existed in the locality which he assigns to it.
" There is on the contrary the strongest reason for supposing
" that the condition of the Shan States* has always been what it
" is now, *i. e.* a congeries of unconfederated petty chieftainships,
" each member of which has often tried to obtain, but has never
" succeeded in obtaining, permanent supremacy over the
" others and who have invariably, whenever there existed a
" powerful government in Burma or on the west of China, been
" subject to one or the other of these powers.....The ancient
" Shan manuscript no doubt details the warlike exploits of the
" different Shan Tsaw-bwa (petty chieftains) who have rendered
" themselves famous by their prowess and by their foreign con-
" quests, but, as far as can be ascertained from Burmese history,
" there never existed any Shan king, who, unless he also occupied
" the throne of Ava, exercised undoubted supremacy over the
" whole of the Shan States".

The Siamese were originally tributary to Cambodia and became independant some five or six centnries ago only, that is *circa* 1350 A. D. According to Major Jenkins the Ahoms appeared in Assam in the first half of the thirteenth century, just about the time when Kublai Khan commenced establishing himself in China. It seems most probable, then, that a distinct Shan kingdom existed in the extreme north, which was attacked and driven southward down the valleys of the Irrawaddy, the Salween and the Mekhong. Part of the mountainous country in the north between the Salween and the Mekhong is inhabited by a Shan race called by themselves *Leû*, who are good cultivators and iron smiths and are said even to make matchlocks. Captain (now General) M'Leod who visited the lower portion of the country they occupied describes them as short, ill made ugly, with flat noses, low foreheads and protruberant bellies. Colonel Yule deems it " not unlikely that the Lewas are a
" degenerated type of the progenitors of the Shan as they existed
" before the race was modified by Booddhist civilization." But if so

* Colonel Browne evidently is alluding to the petty Shan States in the north and does not in any way refer to Siam.

where was the Shan kingdom of which the so called Pong chronicle treats? was it where the *Leû* now are or have they come down following those who had already become civilized, and if so how did Booddhist civilization reach the latter? There could have been no wide spread of Booddhism before the last century before Christ and probably not till long after, and such civilization as it gives must have come still later. It may safely be taken, therefore, that no strong Shan kingdom of which the people were Booddhists and more civilized than their barbarian neighbours could have existed before the begining of the 2nd century before Christ. According to the Pong chronicle the ancient capital is placed on the Shwe-lee an eastern tributary of the Irrawaddy between Bha-maw and Mandalay, and was in existence in the year 30 A. D.*

* It is difficult to decide whether an independent Shan kingdon ever existed. The traditions of the different branches of the Tai family declare that at one time there was such a kingdom in the north of Burma. The term "Great Tai" is applied to the northern Shans and is generally explained as belonging to them because they occupy the original home of the race in Burma.

The chronicle obtained by Captain Pemberton supports this idea, although the characteristic tendency of the Shan to magnify the state and power of their princes may cast a doubt upon its trustworthiness. It is evident also that the northern part of Burma was once the seat of a large Shan population of which the present population is a mere shadow. This renders it possible that the Shan may have enjoyed a brief independence before Burman conquests began to desolate the plains and the successful encroachments of wild tribes began to drive out the Shan inhabiting the monntains. At the present time many mountains and villages in the Kakhyeng districts retain their Shan names, although the Shan long ago ceased to occupy these regions.

The silence of Burman history on the existence and conquest of any great Shan kingdom is very strange, unless such a kingdom existed for a short time only and fell to pieces through intestine troubles. Doubtless powerful principalities existed in the north and one may have gained the supremacy, but had it maintained its dominion for any great length of time, it could not have failed to come into conflict with the Burmans, some traces of which would have come down to us.

With the exception of Siam the region now occupied by the great body of the Tai is unfavourable to the organization of any powerful central government. The physical conformation of the country consists of small plateaux scattered among the mountain ranges that extend southward from the Himalayas, the natural home of small principalities only.

Probably the Shan came into northern Burma after the Burmans and, pressed by the Burmans on one side and the Chinese on the other, they began to push southward ever keeping within the limits of the mountain ranges for safety, until they reached the valley of the Meinam in the south and Cambodia farther to the east, at the same time crowding the aboriginal inhabitants from the plateaux into the mountains. Thus the Pantung, Reng-tsiek, Black Kareng and Paloung west of the Salween and the Ka-kwee, Ka-kaw and Moo seû in the vicinity of Kaingtung are seldom found living upon the plateaux.

Some time ago while examining Edkin's book, 'The Chinese Characters', among some lists of Chinese words in which the ancient forms are compared with the modern, I was surprised to find fifteen of the words in their ancient form identical with the same words in Shan. Future philological study may discover an affinity between the Chinese and the Shan.

The Lewas who inhabit the mountains of the territory mentioned are wild savages only a part of whom have been brought to pay any tribute to the Tsawbwa of Kaingtung. While I was at Kaingtung I saw a large deputation of the dependent Lewas who had been summoned to the city by the Tsawbwa. They answered to the description given by McLeod. Their language is entirely distinct from the Shan and I never heard them called by the Shan by any other name than Lewa.

The Shan in the Kaingtung principality call themselves Kheûn, while those of Kainghong and the adjacent districts called themselves Leû. The confounding of Lewa and Leû doubtless arose from the fact that the vowel *eû* does not exist in Burman

In their features, in their ways, in their manners and in their fondness for agricultural and trading pursuits the Shan strongly resemble the Chinese. The majority of those in this province, who are yearly recruited by arrivals from the Shan States in the north, are gardeners or dealers in cattle and in precious stones which they go across the mountains to Siam to fetch.

I again quote *in extenso* from Mr. Cushing's grammar. "The different divisions of the Tai family have alphabets of "their own. The Siamese alphabet bears no resemblance to the "others. 'It is', says Reverend Dr. Jones 'evidently a modification "'or perhaps a simplification of the Bali character of Cambodja.' "This, however is doubtful, for, according to Bishop Pallegoix, "legendary Siamese history affirms that a certain king intro-"duced the use of letters, and Bastian reports 'a stone inscrip-"'tion' from Ayuthia the ancient capital of Siam, which ascribes "the invention of the Siamese alphabet to a former king in the "following words, 'in former times there was no written charac-"'ter of the Thai, when the era 1205, in the year of the horse, "'the father-benefactor, Ram Kham Heng, having consulted with "'the learned teachers, established the letters of the alphabet "'for the Thai, which exists since that time when the king ar-"'ranged them for use'. The Laos alphabet is derived from the "Burmese, but it has been greatly modified and contains consi-"derable foreign admixture. The Shan follow the Burmese "alphabet more closely than the Laos, one-half of their letters "being identical in form with the Burmese letters and like the "Burmese they are circular. The letters of the Tai-mow "who are found on the extreme north-east of Burma and in Yunan "are the same as those of the Shan with two additional charac-"ters, *f* and *ch*, but these are *diamond shaped* instead of *circular*, "a thing which the Tai-mow attribute to Chinese influence. "Thus where the Shan would write ꩜ *ht*, the Tai-mow would "write ◇◇. Though this principle affects the form of every "letter of the alphabet and the vowel accidents, a skilful Shan

and a Burman interpreter would use *au* as an equivalent in speaking of the Leû and call them Lau. Both the fact of the Tai Leû and the Lewa living to the north, and the similarity of Lau and Lewa in sound probably helped to produce the mistake. The Leû are good cultivators and iron smiths. At Meûng Sam Tow, three days journey north of Kaingtung, the Leû make a variety of matchlocks. Besides the ordinary matchlock they have an ingenious combination of a dha or sword and a pistol. The handle of the dha is the barrel of the pistol and the sheath is its stock. The dha can be unsheathed and used as a sword, the barrel of its pistol being the handle. The Lewa have no more connexion with the Shan than the Kakhyeng and Col. Yule's supposition seems impossible. [Note by Mr. Cushing].

"reader is able with attention to read a Tai-mow book. The "Khamti and Ahom alphabets for the most part resemble the "Shan. Several letters have considerable modification of form "but do not lose their family likeness.

"Undoubtedly the language of the different divisions of the "Tai family was originally the same, but in process of time be-"came separated into several dialects. In Zimmay among the "Laos, and in Bankok among the Siamese, much of the common "language of daily intercourse is essentially the same as among "the Shan. * * * Many words have come to be distinguished by "the aspirated and unaspirated letters, e. g. the Shans say, "ꩡꩣꩮ, *koon*, *man*; while the Laos say ꩡꩣꩮ, *khoon*. Again in the "book language couplets of words are very frequently used to "express one idea. One word of the couplet is used by the Shan "in familiar conversation and the other word is confined to "books, while the book word is the one employed by the Laos "in daily intercourse: e. g. *lee-ngam* is a couplet used in books "to signify *good*; *lee* however is always used by the Shan in "common conversation while *ngam*. is the common word employ-"ed by the Laos. Another class of words is distinguished by "mere *tonal* differences, and another by a phonetic change "of the initial consonant, e. g. *b* among the Laos for *m* among "the Shan, as—*bang*, *light*, *not heavy*, for *mang*; or *f* for *hp* as "*fai* for *hpai*, *fire*. The Tai-mow exhibit less marked dialectical "differences from the Shan than the Siamese and Laos do. "They employ *f* frequently in the place of *hp*. and have some "words not found amongst the other division of the Tai family. "The members of this family on the border of Assam also have "their distinction of dialect. In a little "Catechism" published "in their language by Rev. Dr. Brown at Sadiya in 1838, not "only are there several words and idioms peculiar to them, but "also a class of words in which the initial ꩬ *l* is exchanged "for ꩣ *n*. e. g. they write ꩣꩮꩣ *neun* for ꩬꩮꩣ *leun*, moon; "ꩣꩮꩣ, *now* for ꩬꩮꩣ, *low*, star, etc. This similarity of language "among the Tai family is a sure evidence that there was origi-"nally one Tai language from which the present diversity has "sprung. * * * *

"The Shan language is monosyllabic, but it has many "polysyllabic words of Burmese and Shan origin. Under the in-"fluence of many years of subjugation to Burma, Burmese words "have been introduced and domesticated. The reception by the

" Shan of their religious books from the Burmese also has been " an abundant source of addition of both Burmese and Pali " words. Indeed their religious language is a mosaic of Shan, " Burmese and Pali. E. g. the following is a common formula of " adoration :. ဝေါ်ဟ်ၵသ်သိ်ဟ်။ ၾိုင်သိုင်လ်ၽိုင်ဝ်'။ ယွင်ယိ်ရတ်တၢးၼူ။ " ဝ'ဝၼ်တၢ်သိ^{ၵ}ၽ်။ (*I ask*) *permission three times.* (*I*) *slowly* " *raise hands* (*lit. hands with ten fingers*) *in worship.* (*I*) *reve-* " *rence the precious.* (*I*) *pay homage and worship.* Here ဝေါ်ဟ် " သ် (ပြကၢသ), ရတ်တ^{ၵ}ၼ်ၼ (ရတၢနၢ), ရၼ်တၢ (ဝန္ဒနၢ), are " Pali, သိ^{ၵ}ၽ်ၽ် is the Burmese ရှိခိုး. The remaining words are " Shan.*

" A very few of the Shan books are written in the common " language of life, and are called "books in the colloquial style." " The greater portion are written in a style more or less metri- " cal and are called "books in the preaching style." In these " the words are arranged to produce a smooth, melodious sound " to the ears of the hearer. To effect this object, many words " are used which are not employed in daily life and are called " *flowers* and *leaves*. To such an extent is the insertion of these " words sometimes carried, that an ordinary listener fails to " understand much of what is read."

The Shan alphabet has ten vowels which have the same sound as in Burmese, but it has four dipthongs, a peculiar combination of a vowel with a consonant, and only nineteen consonants.

The vowels and diphthongs and their sounls are :—

ၸ—*ă*, ၸူ—*oo*, ၸၵ်—*ow*

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* In submitting the manuscript to Mr. Cushing I hazarded a marginal note to the effect that "they must have come south before conversion, or Siamese also would " contain Burmese words", and his reply is that

" The supposition in your marginal note seems to me to be correct. It may be that some " divisions of the Tai received Buddhism at different periods or through different channels " from others,

" The form of the temples or *wat* found from Kaing-tung southward through the Laos " into Siam is different from that adopted in the western Shan States, where the Burman " custom is followed. More attention seems to be paid to *wats* than to pagodas.

" There is also a less rigid following of the rules of the priesthood east of the Salween than " west. In the *wats* the priest keeps a money box of his own besides hat belonging to the *wat*. " He goes out frequently to the houses of the people to do some kind of light work for hire, " like the making of umbrellas. In Kaing-tung and its vicinity it is no unusual thing to see " them riding ponies.

" While the religious books of the Shans abound in Burman as well as Pali words, it is " said that the Burman element is comparatively small in the books of the southern Tai. " These things point to a difference of time or of channel in the introduction of Booddhism. " A better knowledge of the books of the different Tai families is necessary to settle this " question".

အ—*a*	ဣ—*i*	ဪ—*eao*, *eo* and *eow*
ဤ—*ee*	အု—*u*	ဩ—*o*
ဥ—*ee*	ဧ—*aw*	ဦ—*eu*
ဪ—*oo*	ဪ—*aw*	ဩ—*ul*

As in Burmese the consonants are divided into classes, but there are not so many in each. They are :—

Gutturals—	ဂ—*kă*;	ခ—*khă*;	င—*ngă*.
Palatals—	စ—*tsă*;	ဆ—*tshă*,	ဉ—*gnyă*.*
Dentals—	တ—*tă*;	ထ—*htă*;	နာ—*nă*.
Labials—	ပ—*pă*;	ဖ—*hpă*;	မ—*mă*.
Liquids—	ယ—*yă*;	ရ—*ră*;	လ—*lă*; ဝ—*wă*.
Aspirates—	သ—*tshă*;	ဟ—*hă*;	အ—*ă*.

The cerebrals and ဠ *l* of Burmese which, as already observed, are only found in words derived from Pali, are entirely wanting in Shan. The aspirated palatal *tshă* and the aspirate *tshă* agree in form and in sound but are always separately inserted in the alphabet; Mr. Cushing conjectures that the aspirate once had a distinct sound of its own. In form it exactly resembles the Burmese *thă* which is there properly a sibilant as it actually is here: *b, d, b, g* and *j* are not represented, but ဗ *mă* when initial is often pronounced *b*;† ရ—*r* as an initial is often softened into လ—*l* or ယ—*y* as ရ—*r* in Burmese is softened into လ—*l* or ယ—*y*, e.g. *darăy; dayay* or *dalay*, a kind of deer.

The vowels are combined with the consonants by means of symbols. These are :—

အ—inherent.

		ကော—ော as ကော—*kăw*.	
ကာ—ာ as ကာ—*kă*		ကော်—ော် as ကော်—*kaw*.	
ကိ—ိ as ကိ—*kee*		ကော်—ော် as ကော်—*kow*.	
ကီ—ီ as ကီ—*kee*		ကော်—ော် as ကော်—*keoo*, *keo* or *keow*	
ကု—ု as ကု—*koo*		ကူ—ူ as ကူ—*kō*.	

* In Mr. Cushing's grammar this sign is transliterated *ny* (*ă understood*). He informs me that the sound is precisely the same as that of the Burmese ဉ which is transliterated *gnyă*, according to the system that has been adopted for Burmese.

† As in Burmese, where မြန်မာ *Myan-ma* is pronounced *Bam-ma*, and မြစ်ကြီး *Myiet-myo* (*Mergui*) is pronounced *Biet-myo*.

ကူ —ူ as ကူ *-koo* ကိုဝ် —ိုဝ် as ကိုဝ် *-keu.*
ကေ—ေ as ကေ *-ke* ကိုင် —ိုင် as ကိုင် *-kul.*
ကဲ —ဲ as ကဲ *-kai.*

Certain consonants again, as in Burmese, are combined with other consonants by means of symbols.

y, —ယ —ျ as ကျ *-kyă.*
r —ရ —ြ as ကြ *-kră.* [syllables.
w —ဝ —ော as ကော *-kaw*, used only in closed
w —ဝ —ွ as ကွ *-kwă.* [syllables.
y-w—ယ and ဝ—ျ as ကျော *-kyaw*, used only in closed

Besides as in Burmese the ်, in Shan called "tshat", kills the inherent *a* and in some cases modifies the inherent vowel of the preceding consonant, but the modifications are not the same; ကက် is *kak* whereas in Burmese it is *kek*. ကုတ် is *koot* but ကုတ်ခ် is *kwee.*

Many words are similarly spelt and it is only by the tone that the meaning can be distinguished, whilst most of the combinations allow of two series of these tones issued when the lips are (a) partially closed and (b) wide open. e. g.

(*a*). ကပ်—natural tone *-I.*
ကပ်—grave „ *-to be odd:*
ကပ်—straight forward *-nine also to tie a knot of hair.*
ကပ်—high „ *-to be rendered indifferent to evil results of a course of action through the influence of a spirit.*
ကပ်—emphatic „ *-an owl.*

(*b*). ကပ်—natural „ *-the butea tree.*
ကပ်—grave „ *-to complain of* or *regret the loss of any thing.*
ကပ်—straight forward *-the leg from the knee to the ancle.*
ကပ်—high „ *-the common balsam plant.*
ကပ်—emphatic „ *-a kind of mill:*

Closed syllables formed with the vowel ◌ᩣ, besides the two series of tones already mentioned, admit of a third series, consisting of tones issued with the lips *moderately opened*, as ᨠᩣᨶ kin, e. g. ᨠᩣᨶ keen, *closed*, ᨠᩣᨶ kin, *mediate*, ᨠᩣᨶ ken, *open*.

This third series although very distinct to the ear is not classified separately by the Shan. No single combination exists in which all the fifteen different pronunciations have a meaning, but more or less of them have a signification. e. g.

(a) closed,

ᨠᩣᨶ—natural tone	*—to eat, to drink.*
ᨠᩣᨶ—grave „	*—to take an oath, swear*
ᨠᩣᨶ—straight forward „	*—a certain throw of dice.*
ᨠᩣᨶ—high „	— } no meaning.
ᨠᩣᨶ—emphatic „	— } no meaning.

(b) mediate.

ᨠᩣᨶ—natural tone	*—to roll up, curl up.*
ᨠᩣᨶ—grave „	— } no meaning.
ᨠᩣᨶ—straight forward „	— } no meaning.
ᨠᩣᨶ—high „	— } no meaning.
ᨠᩣᨶ—emphatic „	— } no meaning.

(c). open.

ᨠᩣᨶ—natural tone	*—the solid substance of any thing.*
ᨠᩣᨶ—grave „	*—to be hard in substance, to be stubborn.*
ᨠᩣᨶ—straight forward „	*—the stem of any thing, a leaf stalk.*
ᨠᩣᨶ—high „	*—to be narrow, strait.*
ᨠᩣᨶ—emphatic „	*—to choke, to be almost suffocated.*

Unlike Siamese, however Shan has no tonal signs.

As in Burmese the way of expunging a word or sentence is by putting a dot in the centre of each letter, e.g. ᨣᩢᨠᩣᨶ.

Again both in Siamese and in Burmese when nouns are used in the plural they have a numeral affix attached which denotes quality in the noun to which they belong. e.g.

ကလေး—*a person*, applied to rational beings, as ကျောင်းကလေး—*five men*.

တွင်—*a body*, applied to animals, as ငှက်တွင်, —*three serpents*.

ဝှေ —*a time*, applied to words, as ဆိုဝှေ —*six words*.

Outlying tribes.

The outlying tribes which, considering our present knowledge and the diversity of opinion amongst those who who have investigated the question of their origin, cannot safely be classed as members of any one of the main stocks, may be divided into two classes:—those whose tribal relations are, as regard those stocks, doubtful, and those who are clearly separate. The former includes the Zabaing or Yabaing, the Khyeng, the Shandoo, the Anoo or Khoung-tso, the Khyaw or Koo-kie and the Toung-thoo, and the latter the Selungs only.

Yabaing.

The Yabaing are found on both the eastern and western flanks of the Pegu Roma. Rude, wild and ignorant they are found only amongst the hills. Their language is Burmese with a strong Arakanese accent. By occupation some are cultivators and many are breeders of silk-worms. Sir A. Phayre remarks that term Yabaing is rather "the description of an occupation than the distinctive name of a "race. * * * The term is probably a Shan word, applied to those "who first introduced the worm from the eastward, and the mean-"ing of it is not now understood." He does not state the grounds on which he came to this conclusion and it is not quite clear whether he supposed that the Yabaing brought the silk-worm with them or were the first to adopt its cultivation as a trade.

According to Dr. Mason they are of Burmese stock and this view is confirmed by their language, and according to Colonel Horace Browne the fact that the occupation of silk growing, which is lucrative, is not more extensively followed than it is is due mainly to the Booddhistic prejudice against the taking of life. "The silk growers live in villages by themselves and hold "but little social intercourse with their neighbours for fear of "being taunted with allusions to their calling." In the eastern Roma "range these people, though of pure Burman descent, have "come to be regarded as a distinct tribe." Against this view—that of pure Burmans being cast out from amongst their fellow men because they live by causing death—might be set the fact

that hunters and fishermen are, not, but in truth there is a vast difference. The calling of a hunter or fisherman is, no doubt, opposed to the tenets of Booddhism, and in that portion of the Talaing and Burmese annals which relate to Gaudama Booddha's supposed visit to Tha-htoon thirty-seven years before he entered Nirwana the country is spoken of reproachfully as a land where fishermen and hunters abound. But the hunter and the fisherman seek for food, the silk-worm grower does not.

Khyeng.

The opinions of those who have studied the Khyeng character, language, customs and traditions differ considerably as to their origin and the stock to which they belong. They are found occupying both the eastern and western flanks of the Arakan Roma mountains and towards the north of the British Burma, they have spread eastward and crossed the Irrawaddy and even (in very small numbers) the Pegu Roma. The present Khyeng country, however, is really the Arakan Roma range: they are essentially hillmen, rarely found in the plains. Their own view is that they belong to the Burmese stock and Sir Arthur Phayre appears to concur generally in this and to consider them as stragglers from armies or moving bodies left behind in the mountains. Colonel Hannay classed them with the Naga tribes and Colonel Yule with the Kooki. Dr. Mason on the other hand would class them with Kareng. The Burmese call the Pwo *Myit-khyeng* or "river Khyeng", the Pwo call themselves *Shó*, and the Khyeng call themselves *Shyoo*. Sir A. Phayre says that this term *Shyoo* "is no doubt recently adopted" and considers that *Khyeng*, a name by which the Khyeng do not, now at any rate, know themselves, is a corruption of *Klang* their word for man, and adds, "An Arakanese in writing down for me words "from the mouth of a man of this race wrote Khyang" "(Burmanice Khyeng), "for what appeared to me to have "the sound of *Klang*."* Further the alphabet made by the Baptist missionaries for the Pwo Kareng dialect can, with very slight modifications, be employed to express most of the

* Phoneticism plays curious pranks with ethnology. In a footnote by Mr. Hodgson to Sir A. Phayre's remarks regarding the Khyeng, to be found at page 14 of the Journal of the Asiatic Society of Bengal for 1853, occurs the following remarkable statement. "Nearer at "hand we have, as terms allied to *Khyeng*, Ra-kheng, (whence our Arakan for the 'Mugs,') "Khyi for the 'Cossiahs,' Kho vel Kyo and Ka for Kambojian tribes, and Ka-khyen for "the Kariens', whilst the Kambojian Kyo vel Gyo re-appears in the Kho of the Koladyne "river." Now *Ra-khaing*, not Ra-kheng, had already been shewn by Sir A. Phayre to be a corruption of Rek-khaik itself derived from Yek-kha, and Koo-la-dan, not Koladyne, is pure Burmese and means 'the place of the foreigners from beyond the sea' from Koo-la a western foreigner, itself derived from '*koo*' to 'cross over' (*the sea* understood) and '*la*' to come, and '*dan*' or '*tan*' anything stretched out' strait, as a line of rocks, a row of houses, a street.

Khyeng sounds. By this means a translation of the Gospel, according to S. John, has been printed which can be understood by a Khyeng who has been taught to read, and a few hymns also have been translated and printed. According to Mr. St. John their language has many words in common with that of the Khamie and Mro. As long ago as 1853 Mr. Kincaid, a Baptist Missionary stationed at Prome, had gathered together a Khyeng hamlet near Prome and had so far instructed the inhabitants by means of the Pwo alphabet that one was already working as a catechist amongst his own people and two more were nearly ready to follow in his footsteps. Like the Pwo they swear by the Tha-bye (*Eugenia sp.*).

They have a custom peculiar to themselves: as soon as a young woman arrives at the age of puberty her face is tattooed with closely adjoining dark blue lines. This practice, which naturally gives to the women a hideous appearance and which in British territory is gradually dying out, is said by some to have been adopted to prevent young men of other tribes from falling in love with Khyeng women, by others to put a stop to a habit of their Burmese rulers of carrying off their most lovely maidens.

They burn their dead and the bones, plucked from the embers, are washed in khoung, a liquor made from fermented rice, and rubbed with turmeric; they are then placed in a pot and kept till they can be deposited in the family burying ground. The position of these burial grounds is carefully concealed. When the bones are buried a feast is held at which there is much drinking and a member of the family, standing by the grave, flourishes a sword and looking up to heaven exclaims "Art thou satisfied now with "the accomplishment of thy purpose in the death of this one of "thy creatures?"

Their dress consists, for the women, of a short waist-cloth open on both sides and a blouse or smock frock (short in the north but worn longer in the south). The men "knot their hair over "their forehead and the waist-cloth is reduced to the smallest "possible dimensions in fact it can hardly be said to have the "slightest pretensions to decency." * Amongst those living on the eastern flank of the Arakan Roma, that is, those who have come into contact with the more civilized races in the plains, the men usually adopt the Burman poot-tsho or waist cloth.

Shandoo.

The Shandoo inhabit the mountainous region east and north-east of the Blue mountain, a peak in the Arakan Roma range at the extreme north-west

* Report on the Hill Tracts of Northern Arakan, 1870-71, by R. F. St. A. St. John, p. 27.

point of the Province, but there are outlying tribes on the Mee and on the head-waters of the Le-mro and it is impossible to say how far they extend north and north-east. Amongst themselves they are known as *Heuma*. They would seem to be among the more civilized of the wild tribes for they are rich in poultry and pigs and some amongst them have wooden houses. They are polygamous by right but rarely so in practice; they can marry two sisters at once, therein differing entirely from the Burmese; they bury their dead in a supine posture in a grave lined with stones; daughters are altogether excluded from succession, widows are left to the charity of the eldest unmarried son, who inherits all the property. They sacrifice animals to the sun and to the moon. In appearance they resemble the Khamie but their language is very different.

Anoo or Khoung-tso.

The Anoo or Khoung-tso are a tribe found in the north of Arakan of which but little is known. Indeed they have only one or two villages in British territory. They dress like the Khamie but have a distinct dialect which contains many words and expressions intelligible to the Manipuris. They bury their dead, but in the forests.

Khyaw.

The Khyaw Mr. St. John considers to be undoubtedly of the Kookie family. "The men knot the hair in "a knot at the back and shave the forehead: "the women plait it into two tails which are brought up over the "forehead." Physically they greatly resemble the lower class of Bengali peasantry in Chittagong. They worship stones which they set up in an upright position in their villages. There are very few in British Burma.

Toung-thoo.

The Toung-thoo are now found in and about Tha-htoon in the Tha-htoon sub-division of the Amherst district of Tenasserim with outlying villages on the banks of the Salween, many miles away to the eastward in the plain country between the Salween and the Hlaing-bhwai, on the Daw-na range, and in the valley of the Houng-tha-raw, whilst they are not altogether unknown in Tavoy and Mergui in the extreme south of the narrow and mountainous stretch of country forming the lower portion of the Tenasserim division. Beyond British territory they are found in the south-eastern part of Upper Burma, in the Shan States and, *teste* Dr. Mason, even in Cambodia. The word 'Toung-thoo' is Burmese and signifies "hill-man"; they call themselves *Pa-o*. There can be no doubt that they are not an aboriginal tribe. They cluster mainly about Tha-htoon and, wherever they may be, look to that as their home. Far up the

valley of the Salween Mr. Treacy found a Toung-thoo village of some two hundred and fifty houses where the whole of the inhabitants were engaged in making articles for the Shan market, whilst still further north is another Tha-htoon inhabited by Toung-thoo. In a note to Sir A. Phayre's History of Pegu in the Journal of the Bengal Asiatic Society for 1873 is a remark, to which I have alluded at the end of a note on page 154, to the effect that Dr. Richardson in 1837 *heard* of descendants of Moon colonists from Tha-htoon as being located on the northern frontier of the Kareng-nee country. Admitting entirely that descendants of colonists who came up from the south are found north of the Kareng-nee country at what I am inclined to call "New Tha-htoon" I cannot admit that these are Moon or have any connection with the Moon or Talaing. They are, I believe, Toung-thoo. It appears most probable that the Toung-thoo came down from the north and settled at and near Tha-htoon which they found already existing, and that some of their descendants returned north and established a town to which they gave the name of the second home which they had left. It is impossible, with our present information, to believe that the Toung-thoo were in lower Burma before the Kolarians or Dravidians, and there is every reason to believe that Tha-htoon was founded and named by the latter. The Toung-thoo, short in stature, strongly built and swarthy, wearing a dress, consisting of trowsers, jacket and turban, almost invariably of dark royal blue very like that worn by the northern Shan who inhabit the country lying between Burma and China south of the river Ta-peng, that is east and south-east of the Ka-khyeng, courageous and warlike, docile and obedient, nay affectionate towards those who gain their confidence, their character dashed with the treachery of Asiatics, with strong feelings curbed for long but at last bursting all bounds, hating Burmans with a bitter and an undying hatred and despising them, successfully meeting them in the field, one to two, unarmed save with swords, their character is that of the race whose dress they wear. Numerous theories as to their origin have been put forward, the most extraordinary, perhaps, that of a Captain Foley who was "persuaded that these people are the descendants of the ancient "'*Tanjau*' described by Gibbon, a remnant of the ancient Huns "preserved during a lapse of 1788 years uncontaminated with the "blood of strangers". They claim to have had a king of their own whose capital was at Tha-htoon which was attacked and taken by the king of the Talaing because he refused to give up a copy of the sacred books brought from Ceylon by Booddha-gosha in 400 A.D. This is clearly contradicted by Talaing history, for the

Talaing capital was not removed to Pegu for at least two centuries after this. The reason given for the invasion leads to the belief that they have a confused tradition of the invasion of the country by Anaw-ra-hta, king of Burma, in 1050 A.D. who conquered the Talaing kingdom which remained subject to Burma for more than two hundred years. Of the events during this period Talaing historians make no mention. Curiously enough although Pegu was then the capital yet the Burmese history says nothing of its capture, but relates that of Tha-htoon at length.

Their language appears to have some affinity with Shan and with Pwo Kareng and very little with Talaing, yet they have the letter *v* found only in the Kareng-nee dialect of Bghai Kareng and not in Burmese, Shan or Talaing.

Their letters resemble those of all the Indo-Chinese tribes but seem to have the greatest resemblance to Shan. In Yule's "Mission to Ava", Appendix M. page 383, it is stated in a note that a "gentleman of the American Mission wrote to Lieutanant "'Newmarch that 'The Toung-thoo *have* a written language and "'books, and kyoungs and priests. I have *seen* their books, and on "'the fall of Sebastopol I *printed* the Governor-General's proclama- "'tion for Lieutenant Burn in Toung-thoo, but I confess it was the "'first and only thing that has ever been printed in Toung-thoo'".

The Rev. Mr. Cushing informs me that "the Toung-thoo have "many kyoungs and books. In some kyoungs the Toung-thoo "language only is taught, but generally instruction is given in "Shan also. I have in my possession" he writes "a large Toung- "thoo book given me by a priest while travelling through the "Toung-thoo region* and the character resembles the Burman "more than the Shan; in fact it has little variation from the "Burman".

Selung. †

The Selung are found only on the Islands of the Mergui Archipelago and would seem to be in some way connected, at least by their language, with the Malays, yet their hereditary dread of that people and their undoubtedly timid and unwarlike character would seem to point to a different origin, and it is most probable that before the sixth century of our era they occupied the country now inhabited by the Malays and were driven out by the gradual advance of this race from Sumatra and sought refuge in the islands where they are now found.

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* That is of the Toung-thoo region north of British territory. [*Edit.*]

† I am indebted to the publications of the late Dr. Mason, and to Mr. Brayton and to Dr. Stevens, of the American Baptist Mission, for the greater part of the account of the Selung (to Mr. Brayton for the vocabulary as well).

They are very low in the stage of civilization and indeed have been described as having no God, no priest, no liturgy, no holy-day and no prayers; but this, from the reports of later and more careful enquirers, would seem to be far too sweeping a statement. Somewhat loose in their morals they yet maintain family relations with firmness. They are kind-hearted, confiding and timid. Like all wild races in the east who have been ground down by fierce and ruthless oppression and brutal cruelty, who have only met strangers to find in them demons worse than the evil spirits of their own religion, they find in the white man who does not cheat nor carry off slaves an inscrutable being whom at first they dread, then wonder at and at last almost adore until he is followed by others of his race or colour who come for their own gain or as the emissaries of a tax-demanding government. From a tax of three Rupees a boat they were delivered by Major Broadfoot and no strange administrator of law has ever lived amongst them attempting to carry out a codified system of European ethics, classified and arranged in chapters and sections. Hidden amongst their islands and wandering from place to place, the white man is known to them only by vague reports concerning those who have gone amongst them to be kind and gentle and forbearing, and whose appearances have been rare and, happily, generally almost as beneficent as angels' visits.

In physical appearance they are between Malays and Burmans. Their language is simple and easy to be acquired and has a strong relation to Malay.

K'taing, ...	... leg
K'laik, ...	... tongue
K'lan, ...	... bone
K'wa-o, ...	... to deceive
K'nee-oon, ...	... heaven
K'man, ...	... darkness
Kaw-lat, ...	... heat
K'ayo, ...	... tree
Ka-yat, ...	... alligator
K'doon, ...	... bamboo
K'lat, ...	... monkey
K'ha-nee, ...	... snake
K'dee-an, ...	... now
K'toong, ...	... ocean
K'noom, ...	... bread
Gya-ha-nee, ...	... spoon
Glang, ...	... worm
Gha-paidn, ...	... opium
Gee-nai, ...	... to sing
Too-da, ...	... god
Maw-keng, ...	... man, (May-sha, Ma-noot)
K'lak, ...	... husband
Bee-noong, ...	... wife, woman (Plow)
Keen, or Seen	... Chinaman
Nga-dien, ...	... to come
Nga-lat, ...	... to steal
Ngeen, ...	... silver
Tsawn, ...	... boiled rice
Tsyang, ...	... to be able, can
Tsa-meng, ...	... honey
Tsee-tsoon, ...	... to-morrow
Tsaim, ...	... Shan
Ta-na-ho, ...	... a Burmese
Ta-la-ho, (lakoon)	... to go
Tom, ...	... how long? how much?
Da-lai, ...	... mountain
Nek, ...	... is to be
Nai-moung, ...	... to kill
Nya-ma, ...	... to worship
Na-baut, ...	... to make
Nyam, ...	... to eat
Pait, ...	... knife
Poor, ...	... paddy
Pa-nak, ...	... to see
Pwa, ...	... oar

Pai-tow, ...	... door
Bee-tam, ...	... where ?
Bak, ...	... to carry
Boo-loung, ...	... neck
Bee-been, ...	... lips
Bo-lo, ...	... hair
Bee-took, ...	... star
Boo-law, ...	... a spear
Ba-tak, ...	... a Malay
Boo-boot, ...	... yesterday
Ma-kaho, ...	... to speak
Ma-am, ...	... to drink
Mah-tak, ...	... the eye
Mee-nang ...	... finger
Mee-nam, ...	... river
Ma-ta-a-law, ...	... the sun
May-nauk, ...	... fowl
Me-aw, ...	... cat
Ma-aw, ...	... a Talaing
Ma-too, ...	... to die
Yong, ...	... the nose
Lat, ...	... to wish, desire
Lit, ...	... to love
Wai-loo-lee, ...	... quick
Alam, or apoee,	... fire
Ai-bap, ...	... old man
Ada, ...	... a duck
Aw-lan, ...	... a snake
Aye-kan, ...	... a fish
Ak, ...	... a crow
Anat-bee-neng,	... daughter
Anat-ka-neng,	... son
Anat, ...	... child
Aye-naung, ...	... mother
Aa-paung, ...	... father
Alien, ...	... day
Aw-mak, ...	... house
Aw-kat, ...	... head
A-moong, ...	... good
A-doot, ...	... bad
Aw-paut, ...	... lord, master
A-sow, ...	... family
La-mat, ...	... wave
La-koot ...	... straight
Lai-kouk, ...	... crooked
La-wat, ...	... ape
La-kow, ...	... to walk
La-kow-bhee-tamle,...	where are you going ?

Too-da a-moong ...	God good.	(God is good.)
May-sha a-moong-ha ...	Man good not.	(Man is not good).
May-sha Too-da lak ...	Man God loves.	(God loves man.)
May-sha Too-da toa-na ...	Man God governs.	(God governs man.)
Lak ha-naung ...	Desire what ?	(What do you want.)
Tsee la-kow tadn ha ...	I go can not.	(I cannot go.)
K'-bang k'-nak ka-nai ka-tam kak...	Boat hit sand ruined is.	(If the boat hits the sand it will be ruined.)

Here *May-sha* resembles *Ma-sha* the word for 'man' amongst the Ka-khyeng in the north of Burma; *Mee-nam* "a river" is Shan; in the phrase *La-kow-bhee-tam-le* the word *bhee* is the Burmese interrogative prefix *bhay*, and *le* is the Burmese interrogative affix; and *K'bang* for "a boat or vessel" is Talaing.

According to Dr. Stevens "they have a traditional belief in "the existence of a God whom they call Too-da, whom they regard "as the greatest and best of beings, who created all things in "heaven and on earth. They have, also, a distinct tradition of "the flood 'after which' they say 'God came down from Heaven "'and assigned to the different nations and tribes their habitations "'and employments'".

As a rule they live in their boats but during the heavy rains as many as 200 are found in encampments on the beaches of some of the islands, yet they rarely remain in one spot for more than a week at a time. When so encamped they construct temporary sheds made of poles cut from the forests and walled and roofed with mats made out of the leaves of a species of palm, which when not in use can be rolled up and easily stowed away and which

form an admirable protection both against sun and rain. Some content themselves with laying out the moveable decks of their boats upon poles and cross-pieces attached thereto, so as to form a platform about six feet long by four wide, on which a whole family will gather at nights, the thick branches of overhanging trees serving for shelter. The rapidity with which a whole camp is moved is striking, and Mr. Benjamin, who lived amongst them for some time, relates that on one occasion the beach was clear within fifteen or twenty minutes.

Their boats are peculiar. The stem of a tree of from eighteen to thirty feet in length is hollowed out and opened by being placed over a slow fire and gradually stretched, thwarts being inserted to keep it open. At intervals along the two upper edges long bamboo spikes are inserted and on these are, as it were impaled, one above the other, the long pithy leaf stems of a plant of the palm family, and the sides are thus increased in height by from two to three feet. The only tools employed are an adze, a a cleaver and an augur. A portion of the boat is covered by a roof of mats made of palm leaves. The sail, which is very large, is made of palm leaves sewn together edgewise: the ropes are of twisted ratan. The boats are extremely light and being admirably modelled fly before the slightest breeze.

Their food is rice, which they receive from Malays, Chinese and others in exchange for sea-slugs, mats, etc. Fish and shell-fish and wild pigs are sometimes caught by their numerous dogs; when their stock of rice is exhausted, as sometimes happens, they eat roots and leaves; a few have fowls.

Their resources are sapan-wood, turtles, shells, pearls, sea-slugs, beeswax and especially mats. The mats are woven by the women, especially in the rainy season when fishing is almost impracticable. The sea-slugs, or bêches de mer, they dig up during the north-east monsoon or from November to May, at low water springs. The "bee hunting" season lasts about a month. Before commencing a hunt a *potee* or "spirit man" lights a wax candle and chants before it an incantation to the spirits of the forests and mountains, frequently interrupting the strains by heavy potations of arrack, which he calls the "honey-water" and without which the ceremony would be comparatively unavailing. The combs are found suspended from the branches of trees and often within two or three feet from the ground. A fire is kindled underneath and when the bees have been driven away the comb is secured. On an average each comb furnishes from two to three Rupees worth of wax; the honey is less valuable.

Some of the produce of the islands is brought to Mergui and to the villages on the coast of the mainland but much is bartered with Chinese and Malay visitors in exchange for rice, salt and cloths, and to a great extent for arrack and opium.

Of the Chinese and Malays they are in exceeding great fear and relate accounts of slave hunting expeditions by these races, and indeed by Burmans in old days, which "bear melancholy marks of truthfulness".

The Selung are not enumerated in the census returns: there neither were nor are in existence means of ascertaining their number, but it does not probably exceed from 3,000 to 4,000. They are divided into several tribes but I have been unable to ascertain ought as to the tribal differences.

CHAPTER V.

RELIGION.

The great religious system which prevails throughout eastern Asia and which counts some two hundred and twenty million votaries is of Aryan origin, its inventor or promulgator having been a Hindoo of the Kshatriya caste, a son of the sovereign of Magadha, a small principality in what is now the province of Oudh. Yet, strangely, this religions system, Booddhism, is, excluding Sinhalese and Nipalese, professed solely by individuals of the Mongolian family. It was an off shoot from and a protest against the Brahmanic system of caste which, after its introduction into India, had been fostered and strengthened by the laws of the Brahman Manu. During the Vedic period the "Kshatriya" was the most important amongst the castes, its members being held in higher estimation than were the Brahmins who subsequently succeeded in usurping the first place amongst the twice born and in arrogating to themselves the priestly functions and the sole right of performing all religious rites. In the Ramayana it is the Pandhava Bhima who sacrifices the horse at the Aswamedha of Yudisthira; it is by Rajas and not by Brahmans that the marriage ceremonies of Rama and Sita and of Nala and Damayanti are performed. In the same work we see how the liveliest feelings of anger and resentment are excited in the breasts of the Kshatriyas present when a Brahman ventures to aspire to the hand of Draupadi, the daughter of the Kshatriya Drupada. Gradually the Brahmans rose as the Kshatriyas sank into the second rank until, during the Brahmanic period, the Brahman, sprung from the mouth of Brahma, is entitled to the whole universe by the right of primo-geniture; the Brahman, by his incantations, can destroy a sovereign and can create new worlds; the Brahman is to enjoy perfect immunity from taxation and is to be fed and supported by the State. So sacred is his person that he who smites him with but a blade of grass will, during twenty-one transmigrations, be "born again as an inferior quad-" ruped", and, whilst the punishment awarded to a Sudra who insults a Brahman or the Brahmanic caste is to have boiling oil poured into his mouth and ears, the severest sentence which can be passed on a Brahman "guilty of all possible crimes" is banishment uninjured in person or property.

It was towards the end of the seventh century B. C. that was born the chief exponent and preacher of those religious tenets which, driven from Hindustan on the triumphant revival of Brahmanism, spread northward to Thibet, southward to Ceylon, and eastward through China to Japan, and are now the faith of no less than a quarter of the whole human race; Siddhartha son of Maya by Suddhodana of the Ikswaksu or solar race and raja of Kapilavastu. An accurate and faithful history of his earlier years will, probably, never be obtained: until he commenced to preach his life was, it may be assumed, that of an ordinary prince of the solar race but the veneration in which he is held by his children in the faith has led them to embellish the traditions of his birth and life with accounts of various portents and miracles. Predestined to be a Booddha he passed through numerous existences for thousands of years receiving therein the rewards and punishments due to his good and evil actions. In the Booddhist scriptures Gaudama, as he is commonly called in Burma, bears several other names indicative either of the duties he has performed or of qualities inherent in his person. Of these the one most commonly met with in the works of European writers on Booddhism is Thakia or Sakia Muni, which means the ascetic of the Thakia or Sakia family. Booddha is not a name but rather an adjective indicating the quality "wise" or "learned". Correctly speaking the author of Booddhism should be called "the Booddha". Rising higher in each stage of his transmigrations and gradually approaching nearer and nearer to perfection the time arrives for his last appearance; conceived in the womb of the religious and saintly Maya, Siddhartha was born in a forest in 623 B. C. whilst his mother was on a journey to Dervasha her birth place. From the moment of his conception the Nat and Bramha—beings who reside in the various regions of happiness —strove together as to who should do him most honour. At his birth the earth rocked and swayed, the heavens sent forth showers of meteors and every tree, rejoicing at his appearance, burst forth in full blossom as a tribute to his glory. The child himself was no sooner born than, standing upright, he declared to his mother and her attendants that his future would be glorious and his knowledge omniscient. Astrologers were consulted but could only say that he would be either a Booddha or a Chakravartti raja ruling over the whole of Tsampoodeepa. The worldly minded Suddhodana his father, a Kshatriya and a warrior, hating with a bitter hatred the Brahmanic or religious caste which had ousted his own from the front rank, determined that as far as in him lay his illustrious son should become famous, not by turning his thoughts to religion and

preaching salvation to all beings but by mighty deeds of arms and immense conquests. At sixteen he was married to the lovely Ya-thaw-dara and numerous maidens were appointed to attend on him to ensure that his mind should not be turned to sacred thoughts.* But all Suddhodana's endeavours were in vain: after living for thirteen years in the enjoyment of every worldly pleasure, Siddhartha, as he was then named, was called to a religious life by a call which he could not resist. One day when proceeding to his garden he encountered a decrepid, toothless tottering old man, and was led to reflect on the perishable nature of all things. A miserable wretch, filthy, squalid and covered with a loathsome and incurable disease whom he next passed on the road led him to turn his thoughts to the unhappy state of man, liable to disease as well as to decay. Meeting a funeral procession he could not but ponder on what he had seen and how death was added to the other miseries of the human race. Lastly, crossing the path of a priest wrapped in calm and peaceful meditation, he saw how man, notwithstanding his unhappy state by nature, might yet pursue such a life as would give him rest and peace. All was complete; he had seen the four signs and the prediction of Manu was about to be fulfilled: his gardens, his palaces and his high estate lost all value in his eyes and he determined on consecrating himself to the attainment of Niekban and to preaching to his fellow beings the sole way of happiness, of final emancipation.† He returned to his palace and after one fond look at his sleeping wife and child he, at the age of twenty-nine, abandoned all and adopting the dress of an ascetic he wandered from place to place subsisting upon alms for six years till the time came when he was to attain the Booddhahood.

This took place at Gaya in 588 B. C. For forty-nine days he was wrapped in intense meditation: seven days under the Bodhi tree on a golden throne which had risen miraculously from the earth; seven days standing motionless on a rising ground close by with his eyes fixed on the throne which he had just left; seven days near the same spot walking backwards and forwards in the air; seven days in a golden house ornamented with jewels

* "Kapilawatthu is my native city. The raja Suddhodana is my father; and the mother who bore me is called Máya. Until my twenty-ninth year I led the life of a layman, having three palaces called Rammo, Surammo and Sabho. I had an establishment of forty thousand accomplished women. Buddha Kochana (Ya-so-dara) was my consort and Rahulo my son". The words of Sakya in the *Bhudavanso*. Turnour in Jour. As: Socy Beng. VII. 817 *apud* Yule in Mission to Ava 1855, note on p. 234.

† Gaudama is generally believed to have seen the four predictive signs at intervals of four months, but the *Dighabanaka* fraternity hold that he witnessed all four on the same day. Cunningham's Bhilsa Topes: 1854: p. 22: Note.

constructed for him by the Nat; seven days under a peepul tree; and finally seven days sitting on an enormous dragon which came out of the Mouzalienda lake hard by and whose folds protected him from a violent storm then raging. During this period he underwent his final temptation, being assulted by Maro, the angel of death, who, however, was powerless against him who looked on death as a happy release.

From Gaya he started as an itinerant preacher of that religion which, a grand protest against Brahmanism and caste, was destined to become at one time the faith of one-half of the population of the globe and to remain that of 222 million souls for more than twenty centuries. In the deer-park, a little north of Benares, he first announced the famous law of the wheel. Forming a company of disciples, the nucleus of the Assembly—distinct from the general mass of believers—who were to help him in spreading his doctrines, he first subjected them to severe discipline and then conferred on them the power of admitting to the Assembly those whom they might think worthy of this high honour. The two leading castes furnished him with numerous disciples, Brahmans and Kshatriyas giving up all to follow the ascetic who taught that there was no lasting peace on earth for man who must look forward to death and nihilism as the only happiness.

But it was far from his object to incorporate with his religion the ties and bonds of caste; it was partly to get rid of these that he preached his dogmas: he placed himself in a far higher position than that which any sage before him in his own country had dared to occupy; *his* mind soared above the narrow prejudices of caste, *his* heart was filled with intense and universal love. What was it to him that a seeker after truth was a Kshatriya, a Brahman or a Sudra, a highwayman or a courtezan? All that he asked was if he had faith and if, converted, he trod in the paths of virtue. Princes apply for admission to the "Assembly" and when about to be admitted have to see a barber take precedence of them in the ceremony because he is more fitted than they.

Sixty highborn Kshatriya converts came from Baranathee or Benares and Brahmans, chiefs of and students in schools where all sorts of metaphysical subjects were argued with the fervour peculiar to Hindoo ascetics, joined in hundreds the ranks of his followers; the Vaisya, wearied with the world and its chicanery of which as a trader he had seen so much, the humble Sudra, no longer cast out and considered as unworthy even to read the sacred books but called and received with open arms, all were placed on a footing of perfect equality and could rise above

each other solely by the more sincere and thorough practice of devotion and holy living. But he would not, he could not stop here: woman the inferior being who from childhood to old age could do nothing according to her own pleasure, who must never wish to separate herself from her father, her husband or her sons, who must adore her husband as a god, woman as well as man should have a right to a seat in the Thanga if only she would shew herself worthy of that blessing; accordingly he instituted an order of female religious who, equally with their fathers and brothers, are members of the "Assembly" and into this admitted, first of all, his aunt and foster mother Patzapati and fifty noble maidens. This principal of universal equality which marks the permanent antagonism of the faith preached by Sakya Muni to Brahmanism and caste merits the attention of all those who wish to understand what Booddhism really is and shews how the mind of Gaudama rose above that of his contemporaries.

Gaudama's preaching was rapidly successful and his followers became numbered by tens of thousands, Brahmans associating with Sudras and rajas vieing with each other in honouring the yellow robed monks. For forty-five years Sakya Muni travelled over north-western India spreading his new religion and making disciples everywhere and he soon found that the Thanga was so numerous .that absolute poverty was no longer possible and gifts of houses and lands made by pious laymen must be accepted.

Thus, endeavouring to lead all beings into the way of happiness and the road to emancipation from all trouble, the great sage reached the patriarchal age of eighty years and then breathed his last, reclining between two Sal tree in the forest near Kuthinara. His body was burnt and over his remains, distributed amongst the sovereigns of the countries where his preaching had been effective, were erected stupas or topes so that

His hallowed relics should be hid.
Under a star y-pointing pyramid.

Of these stupas there were ten,

1.	At Rajagriha in Magadha,	erected by	the raja Ajatasatra.
2.	„ Wethali	„	the Lichawi family,
3.	„ Kapilavastu	„	Sakya,
4.	„ Ramagrama	„	Kausalas,
5.	„ Wetthadipo	„	Brahmans,
6.	„ Allakappo	„	Balayas,
7.	„ Pawa	„	Malliyans,
8.	„ Kuthinara	„	„
9.	„ Pipphalawano	„	Moriyano over some

of the charcoal from the pile as they had applied too late to get any of the relics.

10. Erected by Drona over the vessel in which he had collected and measured the relics, which consisted of four teeth, two collar bones and one frontal bone.*

About twenty years later Ajatasatra collected all the relics and enshrined them in a large tope near Rajagriha and they thus remained for some two hundred and seventy years when, in the reign of Dhamasoka or Dhammathawka in 250 B. C., they were distributed over India and, as will be seen in the accounts of various pagodas in the body of the work, Burma claims to have received more than ever could have existed.

The death of the founder of the new religion let loose the discontent which had till then been latent amongst some of his followers, including even members of the holy Thanga, whose conversion was tainted with imperfections. The bonds of morality enforced by Gaudama had been severe and when his controlling hand was withdrawn one of his disciples, the aged *Subhadra*, thus addressed the others. "Revered ones mourn no more! We are " happily released from the control of the great Sramana: we " shall no more be worried with 'this is allowable' and 'that is " 'not allowable'; we can now do what we wish and can leave " undone what we do not desire".† To remedy such a state of affairs the great Kasyapa in 543 B. C. with the consent of Ajatasatra, called together a Council at Rajagriha the capital of Magadha. The king built a splendid hall and when everything was ready placed the ivory fan on the ledge of the pulpit and sent a message to the members of the Thanga who had obeyed the summons to Rajagriha saying "Lords, my task is performed". The religious having assembled under the presidency of Kasyapa the Vinaya was recited by Upali, whom Gaudama had himself pointed out as the most learned of his disciples, and the Dharma by Ananda, Gaudama's nephew. When all points of controversy had been stated and rulings publicly and authoritatively given, which took seven months, the Council broke up.

* " The whole of these places, including Allakappo although it has not been identified, were situated in Tirhut and Bahar. 1 *Rajagriha* was the ancient capital of *Magadha* or Bahar Proper. 2 The ruins of *Visali* (Wethali) still exist at *Bassahr* to the north of Patna. 3 *Kapilavastu* was somewhere between *Ayodhya* and Gorakhpur. 4 *Ramagrama* was in the neighbourhood of Gorakhpur: it was most likely the *Selampara* of Ptolemy or *Sri-Rampura*. 5 *Wetthadipo* was most probably *Bettiya*. 7 *Pa-wa* was to the west of *Visali* (Wethali), on the high road to *Kusinara* (Kuthinara). 8 *Kusinara* (Kuthinara) was about equi-distant between Benares and Visali or in the position of *Kusia* on the Little Gandak. 9 *Pipphalawano*, or the place of the Charcoal Tope, was between Kapilavastu and Kusinava. The people of Visali are called *Passalæ* by Ptolemy". Cunningham's Bhilsa Topes 1854. p. 29. Note.

† Cunningham's Bhilsa Topes: 1854. p. 56.

BENGAL SECRETARIAT

One hundred years later it was found necessary to assemble another Council to correct the laxity which had spread amongst the Assembly. A numerous fraternity claimed relaxations in Gaudama's laws : they said,

1. *The preservation of salt in horn for any period* is lawful ; instead of the sanctioned seven days.

2. *Food can be taken until the sun's shade is two inches in length ;* whereas Sakya Muni had directed that none should be eaten after noon.

3. *The restriction against indulgences is in force only in monasteries ;* and not for those who may be in villages.

4. *The religious may perform ceremonies in their own rooms ;* instead of in the public hall as directed.

5. *Subsequent* permission covers an act ; Gaudama's rules requiring *prior* permission.

6. *A junior may lawfully copy a senior even in what is wrong ;* whereas no example was an excuse for a wrong act.

7. *Whey may be drank after noon ;* forbidden as being a component part of milk.

8. *Tari may be drank because it looks like water ;* all fermented liquors being forbidden.

9. *Cloth-covered seats are allowable.*

10. *Gold and silver may be accepted as alms ;* the use of them being prohibited*.

The Council assembled under the protection of Kalathawka, king of Magadha, at Wethali or Vaisali and after sitting for eight months under the presidency of Rewato gave judgment against the schismatics to whom degradation was awarded as a punishment.

Matters gradually got worse and in 241 B. C. the great Athawka, king of Patalipotra, desiring to discover and expel the numerous heretics who had found their way into the priesthood, induced Mogalipotra to call the third and last Council. It assembled in Patalipotra, expelled sixty thousand heretics, attended for nine months to the reading of the Vinaya and Dharma and then broke up ; but not until it had arranged for carrying out a scheme which was to extend Booddhism far and wide and to give it an abiding place when it was driven out of India as it was destined to be.

Up to this period Booddhism had been confined within the limits of Magadha, that is north and south Behar and the south-

* Bhilsa Topes, 1854. p. p. 77, 78.

eastern portion of the Doab, but when the Council had completed its labours missionaries were sent north, east, south and west to teach the surrounding tribes and peoples the religion of Gaudama. Thawna and Oottara were directed to proceed in a south-eastern direction to the country of Suvarna Bhoomee or the 'Golden land'. They landed at Tha-htoon, then on the sea coast, between the mouths of the Tsit-toung and the Than-lweng (Salween) rivers and from there the Booddhist doctrines penetrated amongst the tribes in the valleys of the Tsit-toung and Irrawaddy. The Burmese assert that Gaudama visited their country but this is one of the fond delusions with which they debase their early history for there is no historical record to shew that the Booddhist religion entered Burma across the hills in the north and west, inhabited, then as now, by non-Booddhistic tribes of untameable ferocity.

It is no easy task to unfold and describe a creed which, owing to circumstances, localities and nationalities has assumed a variety of shapes and hues which make it bear a different appearance in one country from that which it has in another and the following account must be considered as referring only to Booddhism as it appears in Burma.

Booddhism is the solitary instance in the world of a religion accepted and adhered to by various nations not based upon the belief in a Being superior to man and controlling his destiny; it is an atheistical creed denying the existence of a Supreme Being or at least ignoring it. It is not asserted that all men professing Booddhism are atheists. Every man, in spite of an atheistical teaching, is a believer in some sort of a god. Upon this capital and essential point Gaudama differs from his countrymen who, at that period, remained faithful to the doctrines of the Vedas which undoubtedly uphold the belief in a supreme Being. The idea of a Creator being done away with it follows as a necessary consequence that matter is eternal yet liable to perpetual changes and modifications in accordance with laws which are co-eternal with matter and to these laws are due the destruction and reproduction of all things.

All beings are arranged on a ladder of thirty-one rungs; the four lower occupied by those who are in a state of punishment, either in hell or in the persons of monsters or of animals, the fifth step by man on earth; this is a stage of probation where merits and demerits are the necessary consequences of good and evil works. On the six next rungs are Nat or beings who enjoy, in various degrees, the rewards promised to the observers

of the five precepts incumbent on all men. The next sixteen are tenanted by beings who, by means of reflection and meditation, have attained great, though unequal, proficiency in truth or true science. Lastly, the four superior steps are filled by such as have so far progressed that they can contemplate abstract truth as it is in itself, that is without form or shape.

How did man make his first appearance on earth? When, by the agency of the laws which regulate the modifications of matter, the destroyed world was being re-formed some of those beings who occupy the sixteen steps of the ladder or worlds superior to those of the Nat came down on earth in a state of glorious brightness; this, however, gradually left them and at last passed away entirely owing to their eating of a kind of coarse rice called Thale and by the evil influence of this food passions were, for the first time, imported into the hitherto passionless bosoms of the primitive inhabitants of the new world. Thence forward man has been what he is now, subject to inordinate passions and desires which disturb and disgrace the economy of his moral being. Gaudama proclaimed himself the teacher not of men only but also of Nat and Bramha and the object of his teaching was to enable them to free themselves from the tyranny of their passions, to disentangle themselves from the influences which matter exercises over their senses, and to reach that state in which, delivered from the law of migration from one form into another, they emerge from the whirlpool of existences into a state of final emancipation. This is emphatically called "deliverance". But according to Booddhistic theory this is the end or cessation of 'being' which, as in every material system, must imply the destruction of being. The word *annihilation* is often used to express the last end of the perfected Booddhist but it use in this way is unphilosophical for nothing that exists can be annihilated: forms or modifications of forms are destroyed, or rather are not reproduced, because the causes which acted in producing them exist no longer; it is *nihilism* which follows the cessation of being.

In the Booddhist religion five commands or prohibitions constitute the basis upon which stand all morals, and they are obligatory upon all men without exception:—kill not *at all;* steal not; do not commit adultery; lie not; touch not intoxicating liquors. Gaudama promulgated these five prohibitions on the supposition that man was prone to commit certain sinful acts against which he must be warned, but he utterly neglected to inculcate any of the important duties which man has to perform:

he did not attempt to raise man above his natural level but to prevent his falling below it; his conception of a perfect man fell immeasureably short of reality. The rewards offered to those who observe the five precepts are as far below those offered to the perfect Christian as they are above those which Mahomet offered to his followers. The religious Booddhist cannot expect to enjoy happiness in this life but hereafter in a future existence, either in this world or in one of the six heavens immediately above it (the seats of the Nat still subject to passions) beyond which the most rigid observance of the rules cannot raise him. But how did Gaudama account for the reward of those who do good and the punishment of those who do evil? He declared that each good action begets a good influence which, in due time, brings a reward to him who has done it. and every misdeed is attended by an evil influence which inevitably brings a punishment upon the evil doer adequate to his guilt either in this stage of his existence or in the next. It is on this principle that Booddhists account for all the good and evil which chequer human life. The principle or influence arising from good and evil deeds is exactly proportionate to their intrinsic goodness or wickedness. If when man dies the influence of demerits be greatly preponderating he is thereby precipitated into hell and there remains undergoing a condign punishment until the sum of his demerits has been atoned for, when, under the influence of his former good deeds, should he have done any, he is reborn in the condition of man. There is no eternity of rewards and punishments: each lasts so long as is necessary to compensate for the good or bad deeds of which it is the reward or punishment and no longer.

The doctrine of metempsychosis involved in the Booddhistic theology Gaudama had not to invent, he simply borrowed it from the masters under whom he had studied in his earliest youth: it was common both to the Hindoos and to the Egyptians. The philosophers of Magna Grecia had received it from the latter and were the first to introduce it into the schools of Europe. At first it was intended as a means of purifying the soul and enabling it to free itself from the imperfections that adhere to it. With the Booddhist the doctrine of transmigration is retained but the philosophical mania of the Hindoo converts has almost destroyed the true nature of the idea and rendered man entirely irresponsible hereafter for his actions in this life: they assert that when a man dies his whole being is dissolved or destroyed and nothing remains but the

influence created by merits or demerits, good works or bad ones, and this it is which causes a being to come into existence in a state of happiness or of unhappiness. Booddhist doctors unhesitatingly declare that the new being has nothing in common with the former being, it is a new creature owing its existence entirely to the principle of rewards for good and evil. Such is the idea as it has been elaborated in the Booddhist metaphysical schools but the majority of the people believe that the soul migrates under the all powerful influence of merits and demerits from the deceased individual into another state of existence

The evil doer on his death may be punished by being born again as man in an inferior position, as a monster, or as an animal, according to the amount of punishment which his evil deeds entail—not, be it observed, according to the judgment of any supreme Being but according to the amount inherent in the sum of the evil deeds themselves. An account of the various dungeons in hell and of the numerous sufferings of the monsters, though doubtless interesting to those who desire to acquire a full knowledge of the Booddhist religion need not be given here but it is necessary to say a few words about the 'animal' state of punishment. Animals do not differ from man in nature but in condition only; the animal is a being which formerly existed in the human state but is now undergoing its just punishment. Gaudama himself did not hesitate to confess that, Booddha as he was, he had, owing to former misdeeds, passed through many existences as an animal, thus as it were holding out to all the hope of attaining at some time a beatified existence. To this belief is due the Booddhist objection to taking life of any kind; to do this is to commit an act which amongst the religious is looked upon as modified murder, fishermen or huntsmen by their profession ensuring to themselves a lengthened period of punishment after death.

But to turn to the elevated teachings of the Indian philosopher. He takes his departure from this great and fundamental principle that ignorance is the root of all human evil, the generating principle of concupiscence and other passions, the dark and lofty barrier which encircles all beings and retains them in the vortex of endless existences, the cause of all those illusions to which all beings are subjected. Knowledge or true science is the only agent which can oppose the baneful influence of ignorance, which is a negative influence—the absence of knowledge. Let knowledge be, and ignorance will vanish as darkness is dissipated by light. This true science, this light,

this knowledge can only be obtained by attentive and serious meditation on all existing things: he who possesses the fulness of knowledge is in a state of perfect quietism; he is like a centre to which all things appear to converge; he is placed in the middle of a cloudless atmosphere contemplating and enjoying truth in all peace and quietness. Between the first act of meditation and this final state of serenity there are various stages through which the sage must pass, and this with extreme pain and labour, but which it would be impossible to explain fully in a limited space. The first thing to which the wise man must direct his attention is the true nature of all beings and this shews him that in man is nought but an aggregation of the four elements, constantly undergoing changes; hence the disappearance of the beings which we now see, to be replaced by others. Hence also man has a sixth sense, the knowing principle, which resides in the heart. When the heart is disordered so is the knowing principle in the same way that the sense of sight is weakened if its instrument, the eye, is injured: in short man is a material being devoid of all spirit. The Booddhist sage has but to watch and study the innumerable transformations continually taking place and to seek to ascertain their cause and the conclusion at which he arrives is 'ignorance is the cause and its immediate result the influence of merits and demerits'; this it is that causes the existence of all being and all modifications of being, or in other words all succeeding existences. Having arrived thus far the sage turns for help in the investigations which he has yet to make to the three following principles: change; pain; illusion:—all things are subject to change and to pain and this world is but an illusion for it exhibits nought but incessant change. Bearing in mind these axioms the thoughtful man examines each object in a twofold light; as it is in itself and as it is in connection with other things: he analyses all its component parts and he surveys its relations with all with which it comes in contact. He acquires more and more firmly the belief, the certainty that all beings are, in their various positions and relations, but illusory forms subject to change and to pain. He feels a loathing for all things. He feels as a wrecked mariner clinging to a plank tossed hither and thither at the wild will of the waves and seeks for rest, for freedom from change, pain and illusion, but can see it nowhere here or above. He longs for Niek-ban, the going out from the vortex of existences, the cessation from 'being'; there and nowhere else is *fixity*. Such are the real feelings of well informed Booddhists. Many who have studied Booddhism shew an unwillingness to believe that individ-

uals can be found who look upon it as the highest blessing to cease from being, but those who have closely followed up and understand the reasoning of Booddhist metaphysicians recognize that this, however humiliating to human reason, is undeniably the goal at which they aim. It is but the goal sought by more than one philosophic school in Europe, the sole difference being, perhaps, that the Booddhistic road is harder to tread.

Though, from the Christian point of view, Gaudama has wrecked his religion on the rock of Atheism he has retained in his system most of those moral truths which can, it would seem, spring only from a belief in a Supreme Being. Like many other founders of a new creed he has but adopted what he found, he cannot claim the merit of having discovered them, but he has preserved them and contributed in no small degree to make them known amongst those nations whom the zeal of his disciples and followers has brought under his sway. His system presents, together with the most revolting errors, the finest code of morality to be found outside the pale of Christianity.

Ceremonies are the external manifestation of the inward belief and thus it is that, Gaudama having done away with all idea of a Supreme Being and severed the ties that link man to his Creator and Preserver, the forms of Booddhistic worship are as few as possible. Booddhists venerate above all, three things, which, in their opinion, are worthy of the highest respect which it is possible for man to shew—Booddha, the law and the assembly —emphatically called "the three gems".

By a Booddha a Booddhist understands a being who, during countless existences, sometimes in the state of man, sometimes as an animal or as a monster, has gradually risen towards perfection; during his upward progress he has not been perfect for perfection is reserved for Booddha, and in fact makes them Booddha; he has committed sins for all of which he has had to bear the appropriate punishment in his next existence but his progress has been real, he has steadily increased in knowledge and the practice of the ten cardinal virtues, the principal of which are charity or liberality and self renunciation. At last he leaves the abode of Nat which he has reached by his accumulated merits and descending on earth is born as man. Here he not only masters but annihilates his passions and is then fit to acquire the universal science which qualifies him for the Booddhahood. He at once knows and understands all beings and their relations one with another; he fathoms at once the depth of their miseries and the full extent of their wants; at a glance he

sees the remedies to be applied to all distempers ; by his boundless genius he discovers the law which must be preached to raise mankind from the depths to which they have gradually fallen since the passing away of his predecessor, the law which will cure their moral infirmities and open to them the way of happiness. But one peculiar characteristic of the true Booddha is a deeply seated feeling of love and compassion for all beings which urges him to labour with the utmost zeal and earnestness towards procuring for them what is emphatically called "deliverance", that is extrication from the miseries attending all beings, and towards leading them out of the maelstrom of transmigrations into the smooth waters of Niek-ban. When his time arrives he gains what he so earnestly strove for for others and leaves the whirlpool of existences to 'be' no longer.

Gaudama Booddha never pretended to be a god nor did his disciples ever so consider him but they acknowledge him to be free from passions, possessed of the universal science, and endowed with feelings of the tenderest commiseration for all beings. These three characteristics of the true Booddha are extolled by Booddhists in language as strong as it is possible to use, and some times by devotees with a fervour which surprizes strangers. In the formulas of devotion so often in their mouths there is nought to be found but praises of the "three gems"; they do not pray for according to their idea founder of their religion no longer is, he has passed into Niek-ban and is, therefore, unable to hear any prayers which they might offer or to afford them any assistance.

The second "gem" is the law ; eternal and unchangeable but which, owing to man's natural corruption, is gradually lost till another Booddha comes to repromulgate it. The Booddha does not invent it but by his omniscience discovers it as already existing and as published by his predecessors. He himself, having gone through countless existences, will, by virtue of this very eternal law and his obedience to it during his progress upwards, pass away into peace and freedom, no longer to be troubled by anything, having no connection with this world or its inhabitants, in short into "not being". The expression so much insisted upon by Booddhists "the law is eternal" means that the truths which it teaches and the duties which it inculcates, its constituent parts in a philosophical sense, are eternal, have had no beginning but exist by their very nature. As the Christian believes that truth, justice and love are eternal so does the Booddhist, but with the former they are eternal because they are the attributes of an unchangeable God who has been and will be for ever whilst with the latter they are

eternal by their own intrinsic nature. They are eternal but gradually become wrapped in mist until a Booddha appears who by the power of his good works has obtained omniscience, by his omniscience discovers them, and by his preachings publishes them to suffering humanity. They are precious jewels hidden in darkness until light is suddenly thrown on them by the Booddha when they shine with incomparable brightness on the dazzled eyes of astonished man. The essence of the 'law' is concentrated in the four transcendent truths :—Afflictions and misery encompass all beings in every stage of existence through which they are doomed to pass :—this is due to the desires and passions that torment all beings :—there can be no peace till these desires and passions are eradicated :—these desires and passions can only be thoroughly and entirely got rid of by entering Niek-ban through the four roads that lead to perfection. In short "without ceasing " to be you cannot root out any of those feelings which go to " make up 'being' ". The anchoret of old fled from the world to avoid temptation that he might, by prayers and fastings and scourgings, drive out all evil thoughts and desires but the Booddhist goes further and insists that the only refuge is found after death and then in "absorption". The fervour and love with which pious Booddhists speak of the Law must be witnessed to be realized ; and when writing of it they seem to feel that language has no expressions worthy of it, no words which will adequately represent their veneration and affection. In conversation regarding their faith they are sometimes moved to tears when expatiating on the beauty and the majesty of this, the object of their intense admiration and profoundest respect.

We come now to the third and last gem so much valued by Booddhists :—the *Theng-gha* or Assembly. In the days of Gaudama the Assembly was not composed of all those who believed his doctrines but of those only who became his disciples, embraced a mode of life similar to his own, renounced the world and its pleasures, wore a peculiar and distinctive dress, pledged themselves to live on alms, to practice strict poverty, to refrain from all carnal enjoyments and to live in community under fixed disciplinary regulations. These formed the spiritual family of Booddha and the teaching body, and by their peculiar mode of life reminded the laity by whom they were surrounded of the highest and most importants tenets inculcated by the founder of their religion. No member of the laity, however great his knowledge, however religious his life and actions, could enter the Thanga without becoming a mendicant, bidding adieu to the world and entering a monas-

tery, subjecting himself to a life of self denial and spending his days in the strict observance of restraining rules however galling he might find them. In Burma this body is represented by the yellow-clad Hpoon-gyee dwelling in monasteries scattered over the face of the country, living upon alms, possessing no property, receiving their food morning after morning from the townsmen of their quarter or the inhabitants of their village, but in strict silence, the eyes fastened on the ground and without even looking a request but passing slowly down the streets in single file each one carrying a pot which he opens on the approach of a donor and receives the gift without a change of face, a movement of the head or a word of thanks. They are held in the highest respect by all ranks of people from the sovereign on the throne to the beggar in the street. Their dress, their mode of life, their renunciation of the world and its pleasures draw on them the admiration and veneration of the laity. When they appear in public they are the objects of the greatest deference; all people, whatever may be their social position give away before them. The visitor who seeks them in their monasteries prostrates himself before them three times with up-raised hands both on entering and leaving their holy presence. On standing up he must fall back to a convenient distance, as it would be highly indecorous to turn the back on so saintly a personage, and wheeling to the right depart. The respect paid to the members of the order is everywhere apparent in the liberality with which their wants are supplied, in the size and beauty of the dwellings built for them by laymen, in the respectful language in which they are addressed, in the submissive attitude of those who appear before them, and in the pomp displayed on the occasion of the solemn cremation of their mortal remains after death.

The objects of immediate worship in Burma and to which the same marks of respect are paid as to the Booddha himself are the images of Gaudama and the monuments built over his relics called Zedee, Stupha or Chaityah. The statues of Gaudama are his visible representatives and are so sculptured as to represent the Booddha in various positions which he occupied during life in order to keep alive in the souls of his followers feelings of love and veneration and gratitude for him who laboured so much in their behalf. The majority of his images represent him as sitting in the cross-legged position which he occupied when he attained the Booddha-hood, or as stretched on his right side as he was when, lying on his couch between two Sal trees, he attained Nick-ban, or as standing in the attitude of preaching. There can be no doubt that

Booddhists do actually worship these images to which they pay the same honour as they would to Gaudama in pe[illegible]re placed in raised positions and the worshippers, with m[illegible]ions, offer flowers and light small candles before them, [illegible]r religion distinctly inculcates that—to quote the Rata[illegible]nder the head U'bhato Kotito Panha—it is "useless [illegible]im, and "only requisite to venerate him and his [illegible]ues too, "are only useful for refreshing the memor[illegible] husband-"man sows grain and reaps the harves[illegible]lieves in "Booddha and follows his doctrines will b[illegible]arth and "Booddha are both *per se* inert".

As we have already seen, after Gau[illegible]ad been burnt the relics were carefully collected a[illegible]mongst [illegible]es of territories near Magadha who b[illegible]l erect-[illegible]uli or Stupha over them: two hundr[illegible]rs later [illegible]ere re-distributed in various directi[illegible]s most [illegible]le gifts to various countries whose inh[illegible]braced [illegible]igion of Sakya Muni. As the Bood[illegible]ties in-[illegible]d in wealth and power the religious r[illegible]e mul-[illegible]ed and built on a scale of loftiness and [illegible]propor-tionate to the wealth and prosperity of the [illegible] Burma the monasteries and pagodas form a promin[illegible]l over the country particularly along the banks of t[illegible] Most of these pagodas are supposed to contain re[illegible]a and a very large number to have been erected [illegible]dered sacred by visits from the Booddha during his [illegible] earth as Sakya Muni. To them people resort with th[illegible]aining merit which may help them in their next [illegible]tence and, prostrate on their knees, muttering formu[illegible]f the Booddha but without uttering a prayer for t[illegible]ne to hear, make offerings of lighted candles, small fl[illegible] fruits and boiled rice, the two last being intended for t[illegible] dogs and the crows. To several of these pagodas va[illegible]esort once a year on a fixed day, whilst others are visi[illegible] four worship days which occur in each month, viz: th[illegible] the 8th of the waxing, the new moon and the 8th of [illegible], of which the first and third are the most sacred. Th[illegible]s in the year, from the full moon of July to the full mo[illegible]ber, are observed by all religious Booddhists as peculia[illegible]a and as a period of fasting and of more devoted attend[illegible]n the pagodas. This custom has arisen from the habit of [illegible]nks in early times of remaining in their monasteries in M[illegible]luring the period of the annual rains, devoting their time t[illegible]dy of

the law and its exposition to the faithful who crowded to their dwellings.

Monks.

Those who enter the religious order become neither monks in the ordinary acceptation of the term nor secular priests but "Monk" is the nearest equivalent in English. Booddhists, having none to whom to pray, believing in no active disposer of mundane affairs, in no one who can in any possible way alter the law ofchange and decay, in no one who can by the interposition of his power alter the natural course of events, in no one who can interfere either to punish evil doing or to temper the wind to the shorn lamb, ask for no priesthood, require no intercessor between them and an offended deity. To them a vicarious sacrifice and the existence of a divinely ordained and continued body of men whose life long duty it is to alleviate mental suffering, to guide wanderers into the true path and to intercede perpetually for sinners are unmeaningless and indeed absurd. Theoretically the sole object of a Booddhist in entering the fraternity is to approach nearer to Niek-ban, to place himself in a better position for contemplation and for striving for "emancipation".

By the early Portuguese writers on India the monks are called Talapoins, by the Burmese they are known as Hpoongyee, which means "great glory", or as Rahan, which means "perfect".

The Hpoon-gyee now constitute the Theng-gha or "assembly of the perfect";—the third of the three objects mentioned in the short act of faith often repeated by Booddhists, "I take refuge in "Booddha, thy Law and the Assembly", which is to a Booddhist what "There is but one God and Mahomed is his Prophet" is to the Mussulman.

The meaning of the word Theng-gha is nearly equivalent to that of church or congregation. In the time of Gaudama the assembly consisted of all those who embraced Booddhism and remained with their great teacher living as he lived or, if they parted from him for a while, always keeping up a close intercourse with him and spending a portion of their time in his company. The members were divided into two classes; the A-ree-ya or 'venerable' who, on account of their age and proficiency in the knowledge and fervour in the practice of the precepts contained in the law, occupied the first place and the Bhiek-khoo or religious mendicants.

It would seem to be most probable that the whole body was generally known as Bhiek-khoo from the food being collected by begging and that those amongst the mendicants who attained one of the four states, to be described immediately, were esoteri-

cally designated A-ree-ya. "It is diffi learned
Bishop Bigandet "to assert with any degree of whether
" the Upasakas, or ordinary hearers, have eve arded as
" members of the Thenga" (*Theng-gha*). believers
but continued to live in the world. Certai ncluding
Gaudama's father, king Thoo-daw-da-na, foll ree first
Megga or ways to perfection and became Th a-ga-da-
gam and A-na-gam though they continued to rld.

The A-ree-ya are divided into four cla west is
composed of *Thaw-ta-pam*, that is of those v red the
current leading to deliverance, who have "s e way
" of perfection"; they must be born again t hey can
iek-ban. The second is composed *da-gam*,
lide rapidly down the stream e way
ction and are to be born once more i tion of
once in the condition of man". Bo am and
-gam are pure and exempt from all i emerits.
consists of *A-na-gam* and are to be ore in
tion of Nat. These are exempt fro desires.
-han, that is those of the fourth class t indif-
or all things, they have "gone over t d last
perfection and are ripe for the stage which
allibly obtain after death has relieved t mortal
The A-ree-ya are also divided into , four
ing those who are following the four way on and
those who are in enjoyment of the rew duties
practiced in following the four ways to perfectio

It does not appear that the various degrees archy,
as it now exists, were defined and fixed by Gau minor
details and the existing forms and rules have gr deve-
loped by time from the simple practice of antiqu in the
Booddha and willingness to live in poverty and c under
strict rules were the only requisites for admiss st his
disciples. The applicant, when Gaudama had of his
disposition, had but to renounce the ordinary f life;
exchange his dress for the one prescribed— f rags
picked up in the streets, roads and cemet sewn
together—and engage to live in a state of str y and
he at once became a member of the Theng-gl cefor-
ward he lived in poverty and depended upon s food
and hence was called Bhiek-khoo or mendicant. khoo-
nee, or women who had embraced the holy p were
gradually subjected to very much the same regulat *passu*.

The whole fraternity, as it at present exists in Burma, consists of:—1. *Sheng*; lads who have put on the yellow robe without becoming professed members of the community. This state is considered necessary for at least seven days for all males and any one who has not passed through this stage at some portion of his life is not considered by a Booddhist as better than an animal. 2. *Pyit-tseng*; those who, having lived for a while in the community as Sheng, are admitted as professed members with a special ceremony whereby the title and character of Hpoon-gyee are solemnly conferred. 3. *Tsha-ra (pronounced Htsa-ya)*; the head of each house who controls all the inmates. 4. *Gaing-oot*; a provincial, whose jurisdiction extends over all the communities or houses in the towns and villages of the province or district. 5. *Tsha-ra-daw (pronounced Htsa-ya-daw)*; a superior general who lives in the capital and has the general management of all the affairs of the order throughout Burma, both Upper and British: he is usually known by the title of *Tha-tha-na-paing*, which means that he has power over things appertaining to religion.

Sheng.

For some time before a lad is to be made a Sheng he is specially instructed in the various duties that he will have to perform, the manner in which a Sheng should address a Pyit-tseng, in which he should dress and even eat and perform all the ordinary duties of life, for there is a code which guides him in the minutest details. On the appointed day the boy is decked out in the finest clothes obtainable, decorated with gold chains and jewels, his parents property or lent by some relation or intimate friend, mounted on a pony and led though the town or village shaded by gold umbrellas held over him, a mark of honour allowed in Upper Burma to no one except on this occasion or by special grant from the Sovereign for services performed or as an honour, duly recorded on a palm leaf "patent" sealed with the Royal Peacock seal. Formerly, when the old customs were more strictly carried out than is the case now, he was taken to his relations to do them the obeisance due from a young member of their family but now he goes to his parents' friends and acquaintances, especially if they are rich, and gladly receives presents of money from them. In the meanwhile a feast has been prepared in his parents' house and their relations and friends and many of the elders have been invited as well as the head monk of the monastery into which the lad is to be admitted who comes with several of his brethren: These last, seated in a row with their large fans to shut out from their view the female portion of the congregation which sits in front of them, intone portions

of the Booddhist scriptures. The boy is stripped of his fine clothes, a piece of new white cloth is tied round his loins and his hair is cut off and given to his mother or to an elder sister or presented as an offering at a pagoda. As it is usually long the woman who gets it makes it into a tail or chignon which she uses, as many if not most Burmese women use false hair, to increase the size of the knot she wears at the back of her head. Four of the senior male members of the family now hold out a white cloth by the four corners and the lad bending his head over it it is carefully shaved, the short hairs left by the scissors falling into the cloth. His head is then rubbed with saffron and afterwards with a preparation of a kind of bark (ke-moon-thee) which is an efficient and commonly used detergent. He is then bathed from top to toe and after putting on a handsome waistcloth he is ready to appear before the Hpoon-gyee who by this time has finished intoning the scriptures. Falling on his knees and raising his clasped hands in a praying attitude he uses a formula wh[illegible]as been taught and asks to be admitted into the mona[illegible] probationer. Ready beside the presiding monk a[illegible]ow garments, the pot for collecting the alms of the charita[illegible] given in kind, the strap by which it is supported round the neck and the other paraphernalia of a Sheng which have been prepared by the parents. These the priest presents to him with his own hand and admits him into the confraternity: the boy is properly robed and when the Hpoon-gyee leave accompanies them to his new home and his sleeping place is allotted to him. Next morning he follows the others as they walk through the town or village in single file, looking neither to the right nor to the left but standing still before the houses of the charitable to receive in the pots they carry a cup of smoking boiled rice or such other food as may be given to them and then moving on; when they have completed their round they return to the monastery in the same order and silence and what they have collected nominally serves as the food of the occupants for the day. Nominally, for though the new probationer must do this for at least seven days and must, during that time, live upon what is so collected yet after that he, and *a fortiori* the monks, can have food specially cooked for them, and it is no uncommon thing, Gaudama's teachings notwithstanding, for parents to send a man daily with food for their son or, if they are well to do and can afford it, to send a cook who lives on the monastery grounds and cooks. Indeed there are many elderly persons, both men and women, called Kappie-ya-da-ya-ka, who have devoted themselves to a life of good works and who daily provide food gratis for both monks and pro-

bationers and thereby add to the stock of merit which is to help them on in the next migration and to bring them nearer that much longed for end Niek-ban, or absorption into what must be called the unchangeable but emotionless and powerless, for there is no single word or collocation of words in the English language which would accurately express what a Booddhist understands by Niek-ban.

Having gone through this regimen for seven days the probationer may, with the sanction of his parents, throw off the yellow robe and return into the bosom of his family without forfeiting the "humanity" which he has gained. This, however, is rare and he generally remains in the monastery continuing his lessons until either he abandons the world and becomes a Hpoon-gyee or is old enough to gain a livelihood. In the meanwhile he is not debarred from visiting his parents but he cannot be out between sunset and sunrise.

As the number of Booddhists increased and the inhabitants of whole countries became converts practical common sense shewed that all could not be admitted into the order, that work must be done, that men must live by the sweat of their brow. Very early, indeed, Booddhists became divided into laymen and monks—laymen who adopted the religious tenets, monks who separated themselves from the world and endeavoured to lead a higher life. Is it not the outcome of a human aspiration after peace and rest, aspiration which all have but which each religionist seeks in y? To all, whether Positivist, Booddhist, Mussul- stian, rest, peace and happiness come only after a with the evil that is in the world. With all, dis- er it may be, the steady performance of duty at sonal cost is the grand test of a religious life, that is nd of which will be unspeakable peace and happi- idea each has of peace is different; nihilism for l pleasure which carries no unrest for others, for the ever ending state of praise and adoration of a Trinity Unity in Trinity which at present is unintelligible but le by faith; yet all who look forward at all l to a final state

Where the wicked cease from troubling
And the weary are at rest.

uties of the Sheng are to minister to the wants of the e of the monestery, to bring and place before them, at , the usual supply of water, their betel boxes and their and to attend them when they leave the kyoung on some nd. A portion of his time is occupied in learning to

read, write and cypher. There are five precepts obligatory on all —not to take life, not to steal, to avoid adultery and fornication, to tell the truth, to avoid intoxicating liquors; but for the Sheng five others are added:—not to eat after midday, not to sing, dance or play on any musical instrument*, not to colour his face*, not to sit or lie down on an elevated place not proper for him*, not to touch or handle gold or silver. A breach of the first five entails expulsion; a breach of the second five may be expiated by penance.

Pyit-tseng.

The majority of Sheng return to secular life after remaining for some time in the monastery but some aspire to become Pyit-tseng or religious. In becoming Pyit-tseng they receive no spiritual power, they are merely initiated into a higher stage and made members of a body of which each individual is supposed tobe aiming at a higher degree of sanctity or perfection. It is a gain to themselves that they seek not a heavy burden which they accept in order to do good to their fellow creatures. The Christian priest in taking his solemn oaths and in receiving authority from his divine Master and Exemplar is actuated by a desire to save souls, the Booddhist monk by, if the expression may be allowed, a desire to save his own. In how far each and every individual reaches the high aim set before him or falls short even of his own views held at his ordination or initiation is a question for himself to decide. A marked difference between the spirit of the two systems is that in the Booddhistic salvation of self is the good aimed at; in the Christian guiding others into the way of salvation.

The postulant provides himself, or rather his relations or friends provide him, with the necessary dress and utensils of a Pyit-tseng, namely a *Pat-ta* or mendicant's pot, an open mouthed jar of a truncated spheroidal form wherein are received the alms of the faithful collected every morning; and a *Tsee-wa-ran*. This is the complete dress of a Pyit-tseng†. It consists of a *Ko-wot* or piece of cloth bound to the loins by a leathern girdle (*Kha-ban*) and falling down to the feet, a *Theng-baing* or piece of cloth of rectangular form, worn somewhat as a cloak and covering the shoulders and breast and reaching below the knee; a *Doo-koot*, another piece of cloth of the same shape, folded many times and thrown over the

* These three commands are peculiar; the third may be to ensure proper respect to superiors but the first two seem to relate to an indescribable habit which is specially prohibited to a Pyit-tseng who is forbidden to indulge in carnal pleasure, whether with himself or with animals (see post). The institution of tattooing is commonly ascribed to a desire on the part of the civil rulers to check amongst laymen what religious sanctions are supposed to check amongst religious.

† In Burma invariably yellow, in Thibet red.

left shoulder the ends hanging down before and behind; an *Awana*, a fan made of a single palm leaf set in a light oval wooden frame with a serpentine handle in appearance somewhat resembling the letter *S*; a *Rat* or small hatchet; an *At* or needle; and a *Re-tsit* or small apparatus for straining the water which he drinks. The ceremony of the admission is always performed in a consecrated hall or *Thien*, and it must measure at least twelve cubits in length not including the space occupied by the Pyit-tseng whose presence is required on the occasion. The assembly must include ten or twelve members at least if the ceremony is performed in a town and from four six if it be in the country. The president is called "Oo-pit-tse" *(Master* or *guide)* and he has an assistant call "Kam-ba-wa Tsha-ra" whose office it is to present the candidate and to read the Kam-ba-wa or book of ordination.

As soon as the Pyit-tseng have taken their places the Kam-ba-wa Tsha-ra introduces the novitiant duly clothed and bearing the necessary utensils. The candidate kneels down and, with his hands raised to his forehead and his body bent, repeats three times "Venerable President, I acknowledge you to be my Oo-pit-tse". The assistant addressing himself to the candidate says "Dost "thou acknowledge this to be thy father and these thy sacred vest-"ments?" to which the candidate audibly answers "Yes". The candidate then withdraws to a distance of twelve cubits from the assembled Fathers whom the assistant addresses as follows, "Venerable Oo-pit-tse and you, brethren here congregated, listen "to my words! the candidate who now stands in a humble posture "before you solicits from the Oo-pit-tse the favour of being "honoured with the dignity of Pyit-tseng. If it appears to you "that everything is properly arranged and disposed for this pur-"pose, I will duly admonish him". Then turning to the "candidate he says, "O Candidate, be attentive to my words "and beware lest, on this solemn occasion thou utterest an "untruth or concealest ought from our knowledge. Learn "that there are certain incapacities and defects which render "a person unfit for admission into our order. More-"over, when before the assembly thou art interrogated res-"pecting such defects, thou art to answer truly and declare "what incapacities thou mayest labour under. Now this is not "the time to remain silent and decline thy head; every mem-"ber of the assembly has a right to interrogate thee at his "pleasure and it is thy bounden duty to return an answer to "all his questions."

"Candidate! Art thou affected with leprosy or any such

" odious malady! Hast thou scrofula or any similar complaint? " Dost thou suffer from asthma or cough? Art thou afflicted with " those complaints which arise from a corrupted blood? Art " thou affected by madness or other ills caused by giants, " witches or the evil spirits of the forests or mountains?" To each question the candidate answers "From such complaints " and bodily disorders I am free". The examination continues: " Art thou a man?" "I am". Art thou a true and legitimate " son?" "I am". "Art thou involved in debts?" "I am not". " Art thou the bondman and underling of some great man?" " I am not". "Have thy parents given their consent to thy or- " dination?". "They have". "Hast thou reached the age of " twenty years?" "I have". "Are thy vestments and sacred " Pat-ta prepared?" "They are". "Candidate! what is thy " name?" "Wago".* "What is the name of thy Master?" " His name is Oo-pit-tse".

The assistant turning to the assembled Rahan says "Ve- " nerable Oo-pit-tse and ye assembled brethren, be pleased to " listen to my words. I have duly admonished this candidate " who seeks from you admission to our order. Does the present " moment appear to you a meet and a fit one for his admission. " If so I will order him to approach". The fathers remaining silent the assistant instructs the postulant to go close to the assembly and to ask that he may be received. The candidate approaches the assembly and sitting before them in a respectful attitude resting on his heels, raises his joined hands and says three times, " I beg, oh fathers of this assembly, to be admitted as Rahan. " Have pity on me, take me from my present state of a layman, " which is one of sin and imperfection, advance me to that of " Rahan which is one of virtue and perfection". The assistant then addresses the Council and says, "O ye fathers here as- " sembled, hear my words! This candidate, humbly prostrated " before you, begs of the Oo-pit-tse to be admitted among us, he " is free from all defects, corporeal infirmities and mental inca- " pacities that would otherwise debar him from entering our holy " state; he is provided with the Pat-ta and holy vestments and " he has duly asked the assembly, in the name of the Oo-pit-tse, " for permission to be admitted. Now, therefore, let the assem- " bled fathers complete his ordination. To whomsoever this " seems good let him keep silence: whosoever thinks otherwise " let him declare that the candidate is unworthy of admission!" This he repeats thrice. He continues "Since then none of the

* Meaning a vile and unworthy being.

" fathers object but all are silent which is a sign that all have " consented so, therefore, let it be done. Let this candidate " pass out of the state of sin and imperfection into the perfect " state of a Rahan and thus, by the consent of the Oo-pit-tse " and all the fathers, let him be received". He adds. "The " fathers must note down under what shade, on what day, at what " hour, and in what season the candidate has been received".

The reader of the Kam-ba-wa addressing the candidate continues, "Let the candidate attend to the following account of the " duties which are incumbent upon him and to the faults which " he must carefully avoid".

Kam-ba-wa Tsha-ra. "It is the duty of each member of our " brotherhood to beg for his food with labour and with the exer- " tion of the muscles of his feet, and through the whole course of " his life he must gain his subsistence by the labour of his feet.* " He is allowed to make use of all things that are offered to him " in particular or to the Society in general, that are usually pre- " sented in banquets, that are sent by letter, and that are given on " the new and full moon and at festivals. O Candidate, all these " things you may use for your food".

Candidate. "Sir, I understand what you tell me".

Kam-ba-wa Tsha-ra. "It is a part of the duty of a member " of our Society to wear, through humility, yellow clothes made of " rags thrown about in the streets or among the tombs. If, how- " ever, by his talent and virtue, one procures for himself many " benefactors he may receive from them for his habit the follow- " ing articles, namely, cotton and silk or cloth of red† or yellow " wool".

Candidate. "As I am instructed so will I perform".

Kam-ba-wa Tsha-ra. "Every member of the Society must " dwell in a house built under the shade of lofty trees. But if, " owing to your zeal and virtue, you procure for yourself many " benefactors who are willing to build for you a better habitation " you may dwell in it. The dwelling may be made of bamboo, " wood or bricks, with roofs adorned with spires of pyramidal or " triangular form".

Candidate. "I will duly attend to these instructions".

Kam-ba-wa Tsha-ra. "It is incumbent upon an elect to use " as medicine the urine of a cow or of a black bullock‡

* He must not work with his hands nor beg with his tongue. Amongst some of the Shan tribes, however, the monks do light work such as making umbrellas.

† Of a Thibetan origin, see note on page 215.

‡ The Mop-gha tribe of the Pwo Kareng sacrifice a *black* bullock to the lord of the earth.

" whereon lime and the juice of a lemon or other sour fruit has " been poured. He may also use as medicines articles thrown " out of markets or picked up at the corners of streets. He may " accept, for medicinal purposes, nutmegs or cloves. The follow- " ing articles also may be used medicinally—butter, cream and " honey".

Candidate. "As I am instructed so will I perform".

The newly initiated Rahan is now warned against the four sins the commission of any one of which would entail the loss of the dignity he has just attained.*

Kam-ba-wa Tsha-ra. Elect! being, now admitted into our " Society it is no longer lawful for you to indulge in carnal plea- " sures, whether with yourself or with animals. He who is guilty " of such sin can no longer be numbered among the perfect. Soon- " er shall the severed head be joined again to the neck and life be " restored to the breathless body than a Pyit-tseng who has com- " mitted fornication recover his lost sanctity. Beware, therefore, " lest you pollute yourself with such a crime".

Candidate. "As I an instructed so will I perform".

Kam-ba-wa Tsha-ra. "Again, it is unlawful and forbidden " for an Elect to take things that belong to another or even to " covet them although their value should not exceed a quarter of " a tical (about six annas). Whoever sins even to that small " amount is thereby deprived of his sacred character and can no " more be restored to his pristine state than the branch cut from " the tree can retain its luxuriant foliage and put forth buds. Be- " ware of theft during the whole of your mortal journey".

Candidate. "As I am instructed so will I perform".

Kam-ba-wa Tsha-ra. "Again, an Elect can never knowingly " deprive any living being of life, or wish the death of any one " however troublesome he may prove. Sooner shall the cleft rock " reunite so as to make a whole than he who kills any being be " readmitted into our Society. Cautiously avoid so heinous a " crime".

Candidate, "As I am instructed so will I perform".

Kam-ba-wa Tsha-ra. "Again, no member of our brotherhood " can ever arrogate to himself extraordinary gifts or supernatural " perfections or, through vain glory, give himself out as a holy man " such for instance as to withdraw into solitary places and on pre- " tence of enjoying ecstacies like the A-ree-ya afterwards presume

* If a Pyit-tseng commits any one of the four sins enumerated below he is *ipso facto* excluded from the Society, exteriorly he may continue to be a member of the Theng-gha but inwardly he no longer belongs to it : he becomes a living lie.

" to teach others the way to uncommon spiritual attainments. " Sooner the lofty palm tree that has been cut down can become " green again than an Elect guilty of such pride be restored to his " holy station. Take care that you do not give way to such an " excess".

Candidate. "As I am instructed so will I perform".

This ends the ceremony. The newly made Rahan joins the rest and withdraws in their company to his own monastery.

The Pyit-tseng receives no spiritual character or authority, he has only become a member of a holy Society in order to keep the law more perfectly. He takes upon himself no responsibility as regards others, he has nought to do with guiding and assisting his fellow creatures in their endeavours to attain perfection unless and only in so far as it affords him a means of accumulating merit, of sooner reaching the haven to which all his desires tend; he becomes the very incarnation of selfishness, not sensual or self indulgent selfishness but essentially selfishness: his own good is his sole aim.

The admitted member is not linked indissolubly to his new state: he can leave it and re-enter secular life whenever it pleases him, and can again join the Society by going through the same ceremonies. "It is not very common to meet among the Burmese " Rahan men who from their youth have persevered to an old " age in their vocation. These form the rare exceptions. They " are very much respected and held in high consideration during " their life time and the greatest honours are lavished upon their " mortal remains after their demise. They are often designated by " the honourable denomination *ngay-hpyoo*, "pure from infancy".

Tsha-ra

In every monastery there are, ordinarily, several Pyit-tseng, as well as numerous Sheng, over whom presides a Tsha-ra *(pronounced Htsa-ya)* generally called Hpoon-gyee *par excellence.* He is in most instances the nominee of, and person for whom, the pious founder built the monastery. He has power over all the inmates who acknowledge him as the Superior. He has the management of all the little affairs of the community, enforces obedience to the rules and the regular performance of the duties, corrects abuses, rebukes trespassers, and keeps peace and maintains a good understanding amongst his subordinates. He receives, in his official character, the pious visitors who resort to his monastery.

Gaing-oot.

Numerous monasteries are grouped into what, for want of a better term, I may perhaps be allowed to call "an ecclesiastical district" or "a diocese" under the jurisdiction of a Gaing-oot who is at the same

time the Tsha-ra of his own monastery. He enjoys a large share of public respect and veneration. His monastery outshines the others in splendour and decorations. The first and wealthiest inhabitants of the place call themselves his disciples and supporters and supply him liberally with all that he may require. His chief duty is to settle the disputes that not infrequently arise between rival communities and, aided by some elders, to sit in judgment on a Pyit-tseng accused of any serious breach of the ecclesiastical law.

Tha-tha-na-paing.

The whole order is ruled by the Tha-tha-na-paing or "master "of religion" who resides in the capital. The mere fact of having been the king's preceptor is the usual qualification for the appointment and thus it usually happens that each king appoints a new Tha-tha-na-paing; in such a case the deposed ruler becomes an ordinary member of the fraternity, unless indeed he prefers throwing off his yellow robes altogether.

The Tha-tha-na-paing lives by himself with one or two Hpoon-gyee in a monastery similar in construction to others but of surpassing richness. It is entirely gilt both inside and out and the posts are sometimes inlaid with rubies but generally of the commonest description and of small value. The attendant Hpoon-gyee remain in an apartment near the entrance to receive visitors and to usher them into the great man's presence. When, on certain days of worship, he is invited to the palace the king leaves the dais on which he usually sits and takes one almost on a level with that of the courtiers whilst the Tha-tha-na-paing occupies that given up by the monarch. When he goes out he is usually carried on a gilt litter in great state accompanied by a large number of his brethren and a considerable retinue of laymen.

"In our days the power of the Tha-tha-na-paing is merely "nominal; the effects of his jurisdiction are scarcly felt beyond "his own neighbourhood. Such, however, was not the case in "former times. Spiritual Commissioners were sent yearly by "him to examine into and report on the state of the communities "throughout the provinces. They had to inquire particularly "whether the rules were regularly observed or not, whether the "professed members were really qualified for their holy calling or "not. They were empowered to repress abuses and whenever "some unworthy brother was found within the enclosure of a "monastery he was forthwith degraded, stripped of his yellow "garb and compelled to resume a secular course of life. Unfor-"tunately for the welfare of the order these salutary visits take "place no more; the wholesome check is done away with.

" Left without superior control the order has fallen into a low " degree of abjectness and degradation. The profession of " Talapoin is often looked on now as one fit for lazy, ignorant " and idle people who, being anxious to live well and to do nothing, " put on the sacred dress for a certain time until, tired of the " duties and obligations of their new profession, they retire and be- " take themselves anew to a secular life".

There can be no doubt, however, that up to the present day points of difference amongst the Hpoon-gyee in British Burma are submitted to the Tha-tha-na-paing at Mandalay, and that the vast majority of the monks, except in Amherst and southwards, are up country men who were "ordained" in, and keep up a religio-political connection with, Upper Burma.

Monasteries or Kyoung.

The Rahan invariably live together in a Kyoung or monastery separated from all houses*. In the early days of Booddhism they were content with small huts built beneath the shade of some tall trees but as soon as that religion gained a secure footing kings, nobles and rich men vied with each other in building commodious and indeed splendid houses for them. The monasteries of Ze-ta-won, presented to Gaudama by the rich man A-na-ta-pien, of We-loo-won in Radzagio, given by king Peng-pa-tha-ra, and of Poop-pa-yoon, given by the rich lady Wee-tha-ka, are all mentioned in Booddhist history, whilst the ruins of Ze-ta-won have, partly thanks to the account given by the Chinese pilgrim Hwen Thsang, been found by General Cunningham at a spot on the Rapti fifty-eight miles north of Fyzabad. Ordinarily a monastery is an oblong wooden building, raised from eight to ten feet from the ground and supported on wooden posts, sometimes, though rarely, on brick pillars. Masonry is gradually becoming more common and in the neighbourhood both of Rangoon and Maulmain are found Kyoung built partly of masonry and with tiled roofs. Above the first roof rise others, sometimes to the number of five or six, each smaller than the one below it, giving the building a somewhat pyramidal shape.†

The space between the ground and the flooring is kept open and never used, except by the school boys and the dogs which, when not better engaged, wander about the monastery grounds as they

* In Upper Burma the site is allotted by the government and in some parts of British Burma the people will not erect a monastery until they obtain a written order. Shortly after the annexation of Pegu the first Commissioner, Major (now Sir A. P.) Phayre, had some difficulty in inducing the people in the delta of the Irrawaddy to accept a "Grant" signed by him in lieu of one issued by the government in England.

† This style of roofing is allowed only for buildings devoted to religious purposes, palaces and the dwellings of officials and the form and number of the roofs is a matter of regulation, the dwellings of each grade of officers having their own kind of covering.

choose. A flight of steps made of wood or of masonry, and if of the latter often ornamented at the bottom with two griffins or Bhee-loo one on the lower end of each side wall, leads to the front, and usually open and uncovered, verandah, some eight or ten feet in breadth. Beyond this rises the building. It consists of one vast hall designed for the reception of visitors and used also as a school room for the boys: except on grand occasions the Hpoon-gyee usually stay here, getting rid of time as best they can. At one end is a kind of dais raised one or two feet above the general level and a portion of this is usually unoccupied being used only by the Rahan when they receive visitors; the other portion, nearer the wall, is occupied by images of Gaudama Booddha raised on pedestals with the few implements required for exterior worship and a few wooden boxes highly ornamented with carving and gold and containing the books belonging to the monastery. The dais is often surrounded by shelves on which is a collection of small images of the Booddha and of the fragments of those that have been broken. This hall with the dais occupies just half of building. The other half, behind the first. contains the store room for the alms of the faithful and the dormitories, but sometimes the Rahan or some of them use the principal hall as a sleeping place. In many monasteries the ceiling is ornamented with tracery and in some with paint and is partly gilt whilst that of the Tha-tha-na-paing at the capital is richly gilt inside and out. The cook room, when there is one, is connected with the end of the main building oposite the idol room; the floor is generally on the same level as that of the main building.

There aro others, however, especially in Upper Burma, which are far larger. In some of them "a large open gallery " runs all round the building; a second one of a rectangular shape " but protected by the roof forms, as it were, on the four sides the " *vestibulum* to the central portion of the edifice. It is the place " where the Hpoon-gyee spend the greater portion of their time " either in chatting with the numerous idlers that visit them or in " talking with the children. Large shutters separate this from " the open verandah; they may be thrown open by pushing " forward the lower part, the upper one remaining fixed by " hinges, and so may be opened to the height required to protect " the inmates from the rain and the sun. The central hall, by far " the finest and loftiest of the building, is reserved for the idols " and all the implements of worship and the boxes containing the " books of the monastery, commonly put together in a very dis- " ordered way. The ceiling is gilt and adorned, often with taste

" and elegance. A partition divides the hall into two equal parts. " The one toward the east is for some huge statue of Gaudama " and smaller ones with many articles of worship. The other, " facing the south, is used for several purposes, sometimes as " dormitories for the Talapoins. The posts supporting the inte- " rior part are six or eight in number and offer the finest speci- " mens of teak timber I have ever seen,* some being fully sixty " and seventy feet high.†

Monastic rules.

The rules of the order are contained in a book called the *Pa-tee-mouk*, portions of which are, or are supposed to be, read to the assembled Hpoon-gyee on every feast day. Literally translated "Pa-tee-mouk" means the "book of the enfranchisement" and the regulations therein contained are attributed to Gaudama, as are also those of the Kam-ba-wa. Bishop Bigandet, than whom there is no more competent authority, asserts that "These two " books, with their elaborate divisions and subdivisions, have " been gradually prepared and arranged at an epoch when Bood- " dhism had taken deep root and spread its branches far and wide " and had become the dominant religion in the countries where " it is flourishing. To confer splendour on the admission of " individuals into the body of monks the rules of the Kam-ba-wa " were enacted. To render the life of the Religious an object of " greater veneration in the eyes of the community the regula- " tions of the Patimouk were devised, and were very likely, by a " slow process, brought to that state of completeness in which we " see them at present". Every action, the manner of performing it, the time that it ought to last, the circumstances that must attend it, are carefully regulated. "From the moment a Rahan " rises in the morning to the moment he is to go to enjoy his " natural rest in the evening his only duty is to obey and follow " the ever subsisting will and commands of the founder" of his religion and of his order.

The sins of commission or omission which a Hpoon-gyee is liable to commit are 227 in number and are divided under seven main heads; those comprised under the first, called Pa-ra-zee-ka, are unpardonable and *ipso facto* exclude a Rahan from the Theng-gha; these are fornication, theft, causing death, and vain glory.

The second class is called Theng-gha-dee-thiet and includes the thirteen major sins which are pardonable: the first five relate

* At Hlaing-bhwai in the Amherst district on the left bank of the river of the same name is a monastery remarkable for the enormous size of the posts on which it stands.

† Life or Legend of Gaudama. Rangoon; 1866. p. 148, note.

to uncleanness: 6, the intention of building a monastery without the aid of any benefactor: 7, laying the foundations of a monastery in a place where there are many insects which will thus be destroyed: 8 and 9, making calumnious charges of incontinency: 10, obstinately persisting in sowing discord amongst the Rahan: 11, abetment thereof: 12, habitually violating the rules in small things notwithstanding admonitions: 13, giving scandal to laymen by small faults, such as telling lies. All these as well as those of the five next classes, viz. Pa-tsiet, Htoon-la-tseng, Dook-kat, Doop-pa-thee and Pa-tee-de-tha-nee, can be expiated by confession and penance, but the penance is useless if a sin is represented as of a lighter kind when in reality it should be classed with the thirteen in the Theng-gha-dee-thiet or if the confession is made to one guilty of a similar crime.

The practice of confession is still practised, but somewhat imperfectly, by strict-living Hpoon-gyee. According to the *Wee-nee* or book of scriptures (*apud* Bigandet) "When a Rahan " has been guilty of a violation of the rules he must immediately " go to his superior and, kneeling before him, confess his sin to " him.....He must confess all his sins such as they are without " attempting to conceal those of a more revolting nature or lessen- " ing aggravating circumstances. A penance is then imposed, con- " sisting of certain pious formulæ to be repeated a certain num- " ber of times during the night. A promise must be made by " the penitent to refrain in future from such trespass. This " extraordinary practice is observed now, one would say, *pro* " *forma*. The penitent approaches his superior, kneels down " before him and, having his hands raised to his forehead, says, " 'Venerable superior I do confess here all the sins that I may " 'be guilty of and beg pardon for the same'. He enters upon " no detailed enumeration of the trespasses nor does he specify " anything respecting their nature and the circumstances attend- " ing them. The superior remains satisfied with telling him, " 'Well, take care lest you break the regulations of your profes- " 'sion, and henceforward endeavour to observe them with " 'fidelity'. He dismisses him without inflicting any penance on " him".

The punishments inflicted for repeated transgressions are always light and are usually to walk for a certain time in the sun in the heat of the day, or to carry so many baskets of earth a certain distance, and such like.

Humility, poverty, self denial and chastity, are the four cardinal virtues of a Rahan. For humility's sake he is bound to

shave every part of his body; he must always walk barefoot except when sick and then he may wear sandals the form and colour of which are carefully regulated; his dress must be as plain as possible and made of rags sewn together; he must always remain bareheaded and only in travelling may he carry an umbrella. Now-a-days almost every Hpoon-gyee is seen wearing sandals and with an umbrella and his garments are of good material, and though many disregard the regulatiou that it shall consist of pieces sewn together the majority cut up into small squares the cloth that is presented to them and stitch these together.

The articles necessary for a Rahan have already been enumerated, besides these he may use other fifty-three, but all must be plain, common and almost valueless.

" A true Rahan has no object which he can, properly speak-
" ing, call his own. The Kyoung wherein he lives has been built
" by benefactors and is supplied by them with all that is neces-
" sary or useful to him. Food and raiment are procured for
" him without his having to feel concerned about them. The
" pious liberality of his supporters provides for his wants.
" But it is expected that he shall never concern himself with
" worldly business or transactions of what nature soever they
" may be. He can neither labour, plant, traffic nor do anything
" with the intent of deriving profit therefrom. Agreeably to
" the maxim 'sufficient to the day is the evil thereof' the Rahan
" must not lay by any store for the time to come. He must trust
" in the never failing generosity and ever watchful attention of
" his supporters for his daily wants". When a Rahan requires anything he may not get it himself but must turn to the Sheng or scholars and tell them to do what is lawful, whereupon they fetch what he wants and, remaining at least one cubit from him—he would sin if he allowed them to come nearer—they respectfully present to him the article he wants saying "This is lawful". Gold and silver he may not even touch, yet many now-a-days do, covering their hands with a handkerchief before receiving it or receiving it by one of the school boys who places it in the superior's box. He may not ask for anything and thus those who go out in the morning with their tha-piet, or pot to collect the food for the day, stand in front of the houses of those whom by experience they know will give and looking neither to the right hand nor to the left wait until the pious benefactor brings out a cup of smoking rice or some fruit or condiment and places it in the pot which the Rahan uncovers to receive the gift and then moves on in silence.

Absolute purity in thought, word and deed are strictly enjoined and the rules of the order on this point are many and stringent and all rest on the well grounded belief that in the war between the spirit and the flesh it is safer to avoid than to encounter the enemy. A Rahan may not stay under the same roof as a woman nor travel in the same carriage or boat, he may not touch women's clothes nor even a female animal. He may not even help his own mother should she fall into a ditch but if no other aid is at hand he may offer her his habit or his stick but he must imagine that he is only pulling out a log. When women go to the monasteries to make offerings the Rahan must remain at a great distance from them and be surrounded by their disciples, and when, on the "duty day"* crowds of men and women assemble in some Zayat, or public rest house, to hear parts of the law read, the Rahan sit in front of the congregation with their large fans spread in front of them lest they should sin with their eyes. A Hpoon-gyee never leaves his monastery unaccompanied. As regard purity public opinion is inflexible. A fall entails the greatest disgrace, sometimes the offender is stoned out of his monastery by the laymen and in Upper Burma sometimes even put to death, but as a Rahan can turn layman whenever he chooses lapses are exceedingly rare, indeed are almost unknown.

Temperance is strictly enjoined. Intoxicating liquors are forbidden to Rahan as to all but the rules of the order provide against the temptations to the breach of sobriety and temperance. Cocoanut milk, sugarcane juice and other refreshing draughts, but nothing solid, can be taken between noon and sunrise next morning, and only two meals are allowed between sunrise and noon. Rice and vegetables are his simple diet but the use of fish and meat from being tolerated has become common: his food must consist solely of what he receives from the charitable in his morning's peregrinations. In practice most of the Hpoon-gyee give to the boys or to the dogs what they have collected and live on aliments of a better quality regularly supplied to them by benefactors. The most delicate rice and the finest fruits invariably find their way to the monasteries.

"The quantity of food they may take is also a matter of "regulation, as well as the very mode of taking and even of "swallowing it. Each mouthful must be of moderate size; a "second ought not to be carried to the mouth till the first has

* The eighth of the waxing of the moon, the full, the eighth of the waning and the change in each month.

" been completely disposed of". Betel-chewing is not mentioned in the Wee-nee and Hpoon-gyee indulge very largely in the practice.

In walking through the streets he must avoid hurry on the one hand and dawdling on the other, and keep his eyes fixed on the ground not looking farther than six feet. He neither notices nor salutes those whom he may meet nor pays attention to the reverence shewn him.

A little before daylight when the Rahan wakes he rinses out his mouth, washes his hands and face, and recites a few pious precepts. He then dresses and goes out with his pot and some of the brethren or disciples, also with pots, to collect food. The party perambulate the streets in single file, standing motionless in front of the houses until the offering of rice or fruit or vegetables has been placed in the pot and then moves on. When they have received enough they return to the monastery and eat what they have brought, or oftener more delicate and better dressed food sent them by some *Kap-pee-ya-da-ya-ka* or supporter. On the principal festivals and important occasions abundant offerings are made to them, consisting chiefly of mattresses, pillows, betel boxes, mats, tea cups, bowls, etc. which, except the two first, are not uncommonly fastened to a pyramid of bamboo lattice work and carried though the streets or taken down or up the river in boats, as the case may be, in procession with music and dancing. In return some one of the assembled Rahan repeats the five great precepts and some of the principal tenets of the Booddhist belief, recites sentences in praise of Gaudama and preaches a sermon shewing the merit acquired by alms-giving.

Sometimes they are requested to visit the sick that their sacred presence may frighten away the evil spirits that are causing the disease and afford the sufferer relief: in such a case the Rahan leans over the patient and repeats over him some parts of the law which it is hoped will act as beneficent charms. As it would be highly improper if men, and *a fortiori* women, had their feet above the Hpoon-gyee's head the Rahan, before entering a two storeyed house, makes sure that there is no one in the upper. Bishop Bigandet relates that on one occasion at Penang he saw a Siamese Religious who, the sick man being in the upper storey, got out of the difficulty by having a ladder placed from the street and entering the upper room by the window.

But the great work carried on from day to day in every monastery is gratuitous education. With rare exceptions every Booddhist lad in this country is taught to read and write by the Rahan

and there are very few men who are not able to read and write a little. But unfortunately the schools are very badly conducted; the boys are left much to themselves without regular discipline and control. "When a boy enters a monastery as a student his "teacher places in his hand a piece of blackened board whereon "are written the first letters of the alphabet. The poor lad has "to repeat over and over the name of the letters, crying aloud "with all the power of his lungs. He is left during several weeks "on the same subject until his instructor is satisfied that he knows "his letters. In the next step the boy is instructed to study the "symbols of the vowels which are to be joined with consonants "so as to form syllables and words. When this is done he is "initiated into the act of uniting together and articulating proper-"ly the several consonants with the symbolic vowel characters. "He slowly shapes his course through the apparently much com-"plicated system of all the words of the language. Owing to the "lack of order and method on the part of the teachers boys spend "a long time, sometimes one or two years, in mastering these dif-"ficulties."

The utmost that the Rahan teach is reading, writing, a little, often no, arithmetic, and, by using the Booddhist scriptures as text books, a small knowledge of religion, but far more than is possessed, of the creed which they nominally profess, by many Christians.

The Rahan are also to some extent occupied in making copies on palm leaves of the sacred books, but their main occupation, to which they devote by far the greater portion of their waking time, is simply idleness varied with gossip. It is a mystery how they contrive to avoid ennui, as they do. Sitting cross legged or lying down chatting with some of the crowd of idlers always to be found near a monastery, the younger and more earnest and the idler and slightly more thoughtful fingering a string of beads, chewing betel, and repeating every now and then, in the long pauses of the desultory conversation, devotional formulas of which "A-neet-tsa, Dook-kha, A-nat-ta"—change, sorrow, unreality,—is the most common. The Rahan are incapable of any serious and lengthened meditation. Solemn and serious as is the perpetual change going on around them—life springing from death and passing on to death again; illimitable sorrow and trouble, unrest, pain and weariness; the dead sea apple which is all the result of the fruition of the hopes and desires of care and work; the moral and mental mirage which lures on so many to their utter disappointment—life's problems are acknowledged but never grappled with. For them the noblest of all mundane objects which man can propose

to himself—the alleviation of human suffering—is but waste of time and worldliness. And yet these "lazy monks" exercise an influence probably unequalled at any period of the world's history by any other body of men. "Upon the order" hinges the whole " fabric of Booddhism. From it as from a source flows the life " that maintains and invigorates religious belief in the masses that " profess that creed..... Their order stands in a bold relief over " the Society they belong to. Their dress, their mode of life, " their voluntary denial of all gratification of sensual appetites, " centre upon them the admiring eyes of all. They are looked " upon as the imitators and followers of Booddha; they hold " ostensibly, before ordinary believers, the pattern of that perfec- " tion they have been taught so foundly to revere. The Hpoon- " gyee are as living mementos reminding the people of all that is " most sacred and perfect in practical religion.....But in the " capacity of instructors the members of the order act, as yet, more " directly and actively over the people.....The monasteries are " so many little seminaries where male children receive elemen- " tary instruction. The knowledge that is imparted to them by " their masters is not secular but purely religious.....We do " not mean to say that the instructor has always present to his " mind, as a professor, the direct teaching of religious tenets " but the fact is, that no information is conveyed to the pupils " except that which comes from religious books.....As soon as " the boys are able to read, religious books are put into their " hands. During all the time they remain at school they go over " books that have a direct reference to religion. They, without " ever being aware of it, imbibe religious notions and become ac- " qainted with some parts of the religious creed, particularly with " what relates to Gaudama's preceding and last existence. When " they grow up to manhood they, if they happen to read, have, as " a general rule, no other books but such as have a reference to " religion. When people assemble together either in the dzeats " (*Za-yat*) on the occasion of festival days, or at home on other " public occassions particularly on the days following the death of " some relative, one or several elders read some passages of their " scriptures and thereby supply topics for conversation of a reli- " gious turn. This state of things originates almost entirely from " the early education received in the monasteries at the hands of " their master the Hpoon-gyee. It powerfully contributes to popu- " larize and foster religious notions, whilst it indirectly heightens " and brightens in the eyes of the people the position of the " Religious.

"Moreover, the early intercourse between the youth and "their masters tends to bring, hereafter, into closer contact and "union both the Religious and the laity. It draws nearer the lines "that bind together these two fractions of the Booddhist Society. "The relations thus established between the teachers and the "taught is further strengthened by the fact that the greatest num-"ber of the male portion of the community become affiliated dur-"ing a longer or a shorter period to the society and subjected to "its rules and regulations, they are cast into the mould of Reli-"gious and retain during the remainder of their life some of the "features that have been at an early period stamped on their "young minds. Their memory remains loaded with all that they "have learned by heart during the days they have spent in "monasteries as students or as members of the Society".

The learned Bishop has but amplified the old saying that "as the twig is bent so will the tree grow". A few lines further on he adds, "Were such an institution", that is the monastic order, "to give way and crumble to the dust the vital energies of "that false creed (Booddhism) would soon be weakened and com-"pletely paralyzed. Booddhism would yield before the first "attack that was skilfully and vigorously directed against "it". No one who has seen the existing system at work can doubt the correctness of his views: separate the Hpoon-gyee from the education of the people and thus shew them to be what they are, selfish seekers after their own good, disconnect the budding mind from their influence, and Booddhism must go. But what would replace it? Civilization as it spreads will surely do it, and none the less surely because slowly; and then?

In daily life the Hpoon-gyee is treated by all with the utmost respect. How the sovereign behaves to the Tsha-ra-daw when the latter visits the palace has already been shewn. A few years ago, in the course of official duty, I had to conduct from his place of confinement to a steamer which was to convey him to the Andaman Islands a son of the late king of Burma, the Meng-goon-daing prince who, after rebelling against his father, had escaped to Rangoon. As we drove down he raised his joined hands and made respectful obeissance to every Hpoon-gyee whom we passed on the road. When a Hpoon-gyee walks out all move out of his way and the women squat down on each side of the road. In British Burma these outward marks of respect are often not paid now a days but they are in Upper Burma. But everywhere the Hpoon-gyee at home in his monastery is still the object of the outward signs of veneration. Booddhists of every rank prostrate them-

selves three times before the Tsha-ra and say "Towards obtain "ing the remission of all the sins that I have committed whether "through my senses, my speech, or my heart, I make a first, a "second and a third prostration in honour of the three precious "things—Bhoo-ra, Ta-ra, Theng-gha—the Booddha, the Law and "the assembly. Meanwhile I earnestly wish to be preserved "from the three calamities,* the four states of punishment† and the "five enemies"‡. The Tsha-ra replies "For his merit and as a "reward may he who makes such prostrations be freed from the "four states of punishment, the three calamities, the five sorts of "enemies and from all evil whatsoever. May he obtain the "object of all his wishes, walk steadily in the path of perfection, "enjoy the advantages resulting therefrom and finally attain the "state of Niek-ban". On retiring the visitor makes similar prostrations, retires for about ten feet and, turning to the right, departs.

A layman speaking to a Hpoon-gyee addresses him, with joined hands raised and with a slight motion indicative of prostration as "Bhoo-ra" or lord, whilst the Hpoon-gyee calls him "Ta-ga" or supporter. The language used is very different from that in ordinary use, the pronouns in every sentence indicating the respect of the one, the undoubted superiority of the other. Nor does the respect end with the life of the Hpoon-gyee. "Their mortal re-"mains are honoured to an extent scarcely to be imagined. As "soon as a distinguished member of the brotherhood has given "up the ghost his body is opened, the viscera extracted and "buried in some decent place without any particular ceremony, "and the corpse is embalmed in a very simple manner by putting "ashes, bran§ and other desiccative substances into the abdominal "cavity. It is then swathed in bands of linen wrapped round it "many times, and a thick coat of varnish is laid over the whole. "On this fresh varnish gold leaves are sometimes laid so that the "whole body from head to feet is gilt. When the people are "poor and cannot afford to buy gold for the above purpose a piece "of yellow doth is considered to be the most suitable substitute. "The body, thus attired, is laid in a very massive coffin made not "with planks" as is usual with laymen, but of a single piece of

* A-neet-tsa (*change*), Dook-kha (*suffering*), A-nat-ta (*unreality*).

† Ta-riet-tshan (*as an animal*), Pa-reet-ta (*as a monster*), A-thoo-ra-kay (*as a monster [of another kind]*), Nga-rai (*in hell*).

‡ Fire, Water, Robbers, Governors, Ill-wishers.

§ Rice husk.

timber hollowed in the middle for receiving the earthly frame of the deceased.* A splendid cenotaph raised in a building erected for the purpose is prepared to support a large chest wherein the coffin is deposited. "The chest is often gilt inside and out, and decora-
"ted with flowers made of different polished substances of various
"colours. Pictures, such as native artists contrive to make, are
"deposited round the cenotaph. They represent, ordinarily, reli-
"gious subjects. In this stately situation the body remains exposed
"for several days, nay several months, until the preparations are
"completed for the grand day of the funeral. During that period
"festivals are often celebrated about it, bands of music are playing
"and the people resort in crowds to the spot for the purpose of
"making offerings to defray the expense to be incurred for the
"funeral ceremony. When the appointed day for burning the
"corpse has at last arrived the whole population of the town will
"be seen flocking in their finest dress to witness the display of fire-
"works which takes place on the occasion of burning the corpse.
"A funeral pile of a square form is erected on the most elevated†
"spot. Its height is about fifteen feet and at the summit just below
"the spire is a chamber for receiving the coffin. The corpse having
"been lifted up and hoisted into the place destined for its reception
"fire is set to the pile in a rather uncommon way. An immense
"rocket, placed at a distance of about forty yards, is directed
"towards the pile by means of a fixed rope guiding it thereto.
"Sometimes the rocket is placed on a huge cart and pushed in the
"direction of the pile. In its erratic and uncertain course it
"happens sometimes that it deviates and plunges into the crowd
"wounding and even killing those whom it meets. As soon as it
"comes in contact with the pile the latter immediately takes fire
"by means of combustibles heaped for that purpose and the whole
"is soon consumed. The few remaining pieces of bones are reli-
"giously collected and buried in the vicinity of some pagoda".

Long and careful observation, patient investigation, great learning and remarkable justness of mind have led the Bishop not only to see that the Society is falling, gradually but surely, into disrepute but to investigate the causes and to arrive at conclusions supported by that calm reasoning which he always uses. Shortly they are; first, admission of candidates without reference to their capacity disposition or talents and, secondly, indolence. Many of them are not only ignorant to a degree but also narrow-minded, and

* Much as Chinese coffins are made but not of the same peculiar shape.

† In my experience it is generally some large open space in the neighbourhood: rice fields from which the crop has been reaped or an uncultivated plain.

consequently arrogant, "*stupide*", and self sufficient: the race is, partly from climatic and partly from moral causes, incomparably idle and the mode of life of the Hpoon-gyee weakens any lurking desires towards exertion and self-dependence.

But it would be misleading to omit the glowing tribute which so ardent and so learned a Missionary of the Catholic Church pays to the Society. "The religious order they belong to is, after all, "the greatest in its extent and diffusion, the most extraordinary "and perfect in its fabric and constituent parts, and the wisest in "its rules and prescriptions that has ever existed, either in ancient "or modern times, without the pale of Christianity".

CHAPTER VI.

HISTORY.

FROM THE EARLIEST TIMES TO THE CLOSE OF THE THIRTEENTH CENTURY.

The country comprised within the limits of the Province of British Burma includes the once independent kingdoms of Arakan and Pegu, the petty principalities of Tavoy and Tenasserim, sometimes subject to Burma, sometimes to Siam and sometimes, for brief periods, independent of either, and on the north, in the valley of the Irrawaddy, a portion of the kingdom of Burma. Each of the three great kingdoms has a history of its own; each grew out of the aggregation of petty states and each, eventually, coming in contact with the others was deluged with blood in the attempts of the rulers to extend their dominions. The Peguan kings, though often interfering in Arakan and on several occasions masters of the capital of their northern neighbour, never succeeded in retaining possession for long, and the Arakanese power, shut in by a high range of mountains and, as a general rule, torn by internal dissensions, rarely attempted even to ravage the other states. The Burmans, on the other hand, extended their influence into Arakan and eventually annexed it in 1784 A. D., and on several occasions overcame Pegu and remained its masters for hundreds of years together, losing it again as their own power waned, until, in 1752, the great Aloung-bhoo-ra finally conquered it, and his successors retained it till it was wrested from them by the English in punishment for their arrogance, the injuries they inflicted upon British subjects for which they refused all redress, and the insults they heaped upon the accredited representatives of the British government.

The Burmese and Arakanese historians, in their anxiety to attribute a miraculous origin to the founders of the reigning families and to connect Gaudama personally with their country, have embellished their accounts not only with the most incredible myths and fictions but, in the case of those of Arakan especially, with statements which their own religious books contradict.

The Talaing, on the other hand, assert, and with far greater probability, that their sovereigns were descendants of the rulers of Thu-bin-ga (Venga, on the south coast of India).

It is impossible to fix any definite period at which fable ends and history commences, for fable only very gradually passes into history and ascertained facts are given in slowly increasing numbers, appearing like beacons on a dark and dismal moor, till, at last, the full blaze of the truth appears, truth which is proved to be truth by comparison with the histories of neighbouring states.

Burma.

In the *Ma-ha-ra-za-weng*, or "Royal History", the foundation of the kingdom of Burma is placed in the beginning of the tenth century B. C. or some six hundred years before Alexander invaded India The king of Peng-zee-la-riet, having defeated the Sa-kya kings of Kaw-lee-ya, De-wa-da-ha and Ka-pee-la-wot (*Ka-pee la-vas-tu*) overran their territories and the ruler of the last, Abhi-ra-za, abandoned his country and crossing the mountains eastward founded a new kingdom with the capital at Ta-goung on the left bank of the Irrawaddy in about 23° 30′ North Latitude. On his death he left two sons, Kan Ra-za-gyee and Kan Ra-za-ngay, who quarrelled as to the succession ; the elder brother collecting his followers left Ta-goung and established himself at Ka-le-doung, west of the Khyeng-dweng. Here he was applied to for a ruler by the Kan-ran, the Thek and the Pyoo tribes and he appointed his son Moo-doo-tsiet-ta king over the last. Soon afterwards he abandoned Ka-le and, travelling westward, settled on a mountain called the Kyouk-pan-toung to the east of the Gat-tsha-ba or Koo-la-dan river.

King Ra-za-ngay had thirty-one successors the last of whom, Bhien-na-ka, was driven southwards by an irruption of Chinese, and settled at Ma-le, about eighty miles above Amarapoora, where he died. His people separated into three parties; one went east and settled in what are now the Shan States, another went down the Irrawaddy and appears to have joined the Pyoo, and the third remained in Ma-le with the chief Queen, Na-ga-tshien-ga. At this time Gaudama appeared in Ka-pee-la-vas-tu. During his life time Ka-pee-la-vas-tu was again attacked and conquered and Da-za Ra-za, one of the princes, fled to the Ka-bo valley. Thence he removed to Ma-le and having married Na-ga-tshien-ga the two returned northwards and founded upper or old Pa-gan and some years later removed to Ta-goung. Gaudama is now brought upon the scene. Two brothers built a monastery at Tsa-gaing on the Man river, a tributary of the Irrawad-

dy, and the Booddha, accompanied by five hundred Ra-han-da came to visit it, flying through the air on the wings of the wind. Descending the Irrawaddy be arrived at the hills opposite the spot where now stands Prome. Immediately to the south-east was the sea.* Floating thereon he saw a small mass of dry cow-dung, and a bamboo rat appeared before him and made obeisance to the Bhoo-ra. On this Gaudama prophesied that "in the year 101 five great omens shall be manifested here. "A violent earthquake shall shake the whole land: where the "Bho-oo peak now rises there shall be a lake: the Tsa-moon-"than river shall be formed: the earth shall rise and form the "*Poop-pa-toung*†: in the country where will be built Tha-re-"khettra the sea shall be dried up. In the time when these "omens shall be manifested and fulfilled that little bamboo rat, "removed from his existing body and become a man, shall be "king over a great country under the name of Dwot-ta-boung. "In that king's reign, in the Mram-ma (Burmese) country, my "divine religion shall flourish and shall exist throughout long "ages".

The prince whom we have seen re-establishing the Ta-goung kingdom was succeeded by seventeen monarchs whose reigns were all short. At this period there were, therefore, according to the Ma-ha-ra-za-weng, two kingdoms—that of Ta-goung and that of the Pyoo, Kan-ran and Thek, both ruled by descendants of the Ikshwaksu dynasty of Ka-pee-la-vas-tu. The second of these was subsequently destroyed by repeated attacks from Arakan. When the seventeenth king was reigning in Ta-goung a mighty boar ravaged the country and the heir apparent, Prince La-ba-doo-ha, the brother-in-law of the king, was sent to hunt it down. The boar fled to the Shan States and thence returned to the Irrawaddy and was finally slain on an island near the present site of of Prome.‡ The prince had been long absent from Ta-goung and, wearied with the world, he determined on becoming a hermit. Soon after he had established himself in the forests he found an infant to which a doe had given birth and he adopted the child as his own daughter. In the same year the queen of Ta-goung gave birth to two sons both of whom were blind: the

* The hills near Prome contain large deposits of marine shells.

† The name of an extinct volcano about 200 miles north of Prome.

‡ The glen where the boar is supposed to have entered the mountains east of the Irrawaddy is still called *Wek-weng* or "Boar's entrance"; the spot where it crossed the Irrawaddy is called *Wek-ma-tswot* or "Boar not wet" as the animal was of so enormous a size that his belly was not wet by the water; the island on which it was killed is called *Wek-hto-kywon*, and a lake north of Prome where it was wounded is called *Wek-htee-gan*.

king, their father, moved with shame, ordered them to be put to death, but their lives were preserved by their mother, and they were named Maha-tham-ba-wa and Tsoo-la-tham-ba-wa. When they were about twenty years old the king discovered that his orders had not been carried out, and again directed that they should be put to death, but their mother put them on a raft and they floated down the Irrawaddy. On the way down their sight was restored by a Bhee-loo-ma, or ogress, and on arriving at Prome they saw Bhe-da-rie, the hermit's adopted daughter, and landing and making known who they were the eldest was, in the year 60 or 483 B. C. married to Bhe-da-rie :—that night Gaudama's prediction was fulfilled. The Maha-ra-za-weng now omits all notice of Ta-goung for some centuries and gives the history of Prome, Ra-thay-myo or Tha-re-khettra. The Pyoo, Kan-ran and Thek in their wanderings arrived at Prome, where they quarrelled amongst themselves, the Pyoo remaining in possession of that portion of the country and the Kan-ran and Thek going west to Arakan.

Maha-tham-ba-wa took the queen of the Pyoo as his second wife and by her had a daughter, having already a son, Dwot-ta-boung, by his cousin Bhe-da-rie. After a reign of six years Maha-tham-ba-wa died and was succeeded by his younger brother Tsoo la-tham-ba-wa who reigned for thirty-five years. During this period his nephew Dwot-ta-boung married his own half sister according to the custom of his ancestors and founded the city of Tha-re-khettra about seven miles to the east of the Irrawaddy. The chronological tables now become exceedingly complicated, some making Dwot-ta-boung ascend the throne of Tha-re-khettra in 443 B. C., and after reigning seventy years be succeeded by his son Dwot-ta-ran, whilst others make Dwot-ta-ran the son of Bien-doo-tsa-ra king of Majjima, but adhere to the same date, viz. 443 B. C. It is highly improbable that Burma then had much intercourse with India and the object of the compilers of the latter story was, most probably, to prove the then flourishing state of Booddhism in Burma when in truth it was unknown. Dwot-ta-boung was followed by eight kings whose reigns extended to 114 B. C. A change in the dynasty then occurred for which the Burmese historians have invented a reason as utterly opposed to common sense as the earlier traditions which they record. One Te-pa, a humble student in a monastery, was directed by his teacher, who understood the language of birds, to kill and prepare for him a cock which crowed "whosoever eats my head will " become king". The head fell to the ground and the poor stu-

dent, thinking it thus rendered unfit for his master, ate it himself and "became king accordingly". In the chronological tables Tepa is called a foreigner and the historian, writing years after the event, most probably invented the story of the cock to gloss over a foreign conquest. Tepa was succeeded by fifteen of his descendants, the last but one of whom, Thoo-pa-gnya Na-ga-ra-tsien-ga, is said to have conquered Arakan, but no trace of such a conquest is to be found in the Arakanese annals, nor are some of the circumstances connected therewith, as given by the Burmese historians, at all consistent with those related in the Arakanese accounts. Na-ga-ra-tsien-ga is by the former described as having found in Arakan a colossal image of Gaudama which he endeavoured to bring away in the same state as that in which he found it but which his generals melted down and cast into twenty-eight smaller images. The Arakanese annals relate that such an image was cast, *circa* 150 A.D., by Tsan-da-thoo-ree-ya, who reigned from 146 A.D. to 198 A.D., and that it remained in Arakan in the Ma-ha-moo-nee temple until the final conquest of Arakan by the Burmese in 1783 A.D.; and it is certain that such an image was then carried away to Ava where it now is, and where, it may be noted, it is held to be peculiarly sacred on account of its having been cast during the lifetime of Gaudama*. Another fact militating against the credibility of Na-ga-ra-tsien-ga's conquest is the account given of the destruction of his kingdom a few years later after he had been succeeded by his nephew. Possibly he unsuccessfully invaded Arakan, but even this is not mentioned in the Arakanese histories.

Thoo-pa-gnya Na-ga-ra-tsien-ga was succeeded in 82 A.D. by his nephew Tha-moon-da-rit, one of whose first acts was to reform the calendar and to change the era. Rebellions seem to have broken out in several places and in 95 A.D., and again in 104 A.D. the Arakanese, taking advantage of the internal troubles, overran the country and on the second occasion destroyed Tha-re-khettra. In the meanwhile Tha-moon-da-rit had fled first to Toung-gnyo, south of Prome, and then to Pa-doung on the other bank of the Irrawaddy, but being still harassed by the Arakanese he went northwards to Meng-doon. He subsequently left Meng-doon and in 109 A.D. ascended the Irrawaddy and refounded Pagan, near Ta-goung, now known as "Old" or "Upper" Pagan to distinguish it from its more modern namesake south of Mandalay. In establishing his new kingdom he was greatly assisted by a scion of the old Ta-goung race of kings named Pyoo-meng-tee or Pyoo-tsaw-tee who married his daughter and afterwards succeeded him.

See pp. 249, 250.

Including Tha-moon-da-rit eighteen kings reigned in Upper Pagan. These were succeeded by the usurper Poop-pa-tsaw who, in 638 or 639 A. D., changed the era and adopted that now in common use throughout the country.

Poop-pa-tsaw's successor was his brother Pyen-pya, who, probably driven south by the Shan and Chinese, transferred his capital to lower Pagan where nine of the existing pagodas, but all small and now in ruins, are ascribed to him. Twenty-one kings pass in rapid succession. In about 1017 A.D. A-naw-ra-hta-meng-tsaw ascended the throne; he is the second among the five monarchs to whom the Burmese apply the epithet "great".* This king, a devoted follower of Gaudama, was not content with building pagodas and monasteries but was led by his anxiety to possess copies of the scriptures and relics of the Booddha to invade China in the north and Pegu and Arakan in the south. From China he desired to obtain a famous tooth-relic but was met by a large Chinese force and eventually obliged to content himself with a facsimile of the tooth which he enshrined in his capital under the Shwe-tsee-goon pagoda. His invasion of Arakan followed his expedition into China and his object in this case was to obtain possession of the colossal brass image of Gaudama but he was again foiled. There was a great revival of Booddhism at about the same time in Thibet and the learned Dr. Mason considered it probable that the revival there and in Burma was due to a spirit of propagandism Emanating from Central India.

Some years later Khet-ta-reng, the claimant of the throne of Arakan, fled to his court upon which the Pagan sovereign invaded Arakan, killed Nga-meng-nga-htoon who was then ruling and who in truth had more right to the throne than his half brother Khet-ta-reng, and placed the latter on the throne.

Not long before his death, actuated it is said by a desire to obtain the copy of the Booddhist scriptures which had been brought from Ceylon by Booddha-ghossa, he invaded and conquered Pegu. The account of the capture of Tha-htoon is mentioned at great length in the Burmese history but Pegu is not alluded to. This may possibly be due to the main object of the king having been to obtain possession of that town, for it is certain from the Talaing and Burmese annals that Pegu was the capital and that the whole country was conquered. During this king's reign Booddhism was firmly established "and purged of the numerous here-

* These five are (1) Dwot-ta-boung, (2) A-na-raw-hta-meng-tsaw, (3) Na-ra-pa-tee-tsee-thoo, (4) A-nouk-bhek-lwon-meng-ta-ra, (5) Aloung-bhoo-ra.

"sies which had sprung up".* It is worthy of note that about the same time there was a revival of Booddhism in Thibet and throughout those portions of India where it still lingered, Bandelkhand, Malwa, Magadha and Kashmir, in the last of which a colossal copper image of Gaudama was set up, whilst about the same period was erected the sthupa of Sarnath more than two hundred feet high. That Booddhism was originally imported into the upper portion of the Irrawaddy valley from the coast and spread amongst the various tribes of the same stock then inhabiting that portion of the country by missionaries from Tha-htoon is the theory held by Sir A. Phayre and by the learned Doctors Bigandet and Mason, and it is supported by the fact that although Booddhism was now, in India, making one last and mighty effort to recover its ancient glory yet it was the pagodas of Tha-htoon which A-naw-ra-hta-meng-tsaw copied in building sthupas at Pagan, and it was from Tha-htoon that he brought the priests and wise men under whose instructions and guidance he worked so zealously for Booddhism.

A-naw-ra-hta-meng-tsaw, to whom was mainly due the prosperity of the Pagan monarchy, left to his son and successor, Kyan-tsit-tha, territories which probably included the Shan States in the North and East, the country now called Upper Burma, Pegu and the whole Tenasserim coast, while on the west Arakan, if not actually tributary, was weak and dependent to a considerable extent on the king of Pagan.

Kyan-tsit-tha† appointed his foster brother Ra-man-kan as governor of Pegu. He rebelled and marched with a Peguan army against Pagan but though at first successful was eventually defeated and killed. At about the same time, or shortly afterwards, Meng-re-bhoora, the rightful sovereign of Arakan, was driven out and took refuge at Pagan where he died, leaving a son by his sister, named Lek-ya-meng-nan. In 1085 A. D. Kyan-tsit-tha was succeeded by his son Aloung-tsee-thoo, and shortly after his accession the governor of Tenasserim, which had been conquered from the Siamese, threw off the Burman yoke but the rebellion was speedily suppressed. In 1102 A.D. Aloung-tsee-thoo interfered actively in the cause of Lek-ya-meng-nan of

* Can this be a Burmano-historical way of saying that Booddhism was then introduced into Burma?

† In Sir A Phayre's History of Arakan at page 39 this king is called Kyan-tsit-tha, by Mason, (Burma page 45) Kyan-yeet-that, and by Sir Arthur Phayre in his history of Pegu (page 40) Tsau-lu, which according to the system of spelling adopted in the Gazetteer would be Tsaw-loo.

Arakan and despatched an army to aid him in recovery of his throne.* Theng-kha-ra who had usurped the throne, had been succeeded by his son Meng-than, and then by his grand-son Meng-pa-dee. The Talaing force proceeded by sea and the Burman by land, and the former being defeated the latter retired without attempting any thing. Another force was sent by land which defeated the Arakanese and restored Lek-ya-meng-nan to the throne of his ancestors. The Arakanese annals treat this invasion as a successful endeavour to restore the rightful sovereign, the Burmese as a conquest of the country, and according to the former the Burmese unsuccessfully endeavoured to carry away the brass image from Ma-ha-moo-nee, whereby it was much injured. Lek-ya-meng-nan in return for the aid rendered to him undertook to repair the Booddhist temples at Booddha-gaya in the name of Aloung-tsee-thoo who was to reap all the benefit.† Aloung-tsee-thoo died in 1160 A. D. and was succeeded by a king who is known in history as "Koo-la-kya-meng" or the king dethroned by the foreigners. Who these foreigners were is uncertain. According to Burney they were Chittagonians but it appears more probable that they were Sinhalese. In Aloung-tsee-thoo's reign there was considerable intercourse between Burma and Ceylon, principally through the port of Bassein, and in Turnours's epitome of Sinhalese history (*apud* Yule's Mission to Ava pagee 47, note) the Sinhalese invaded Cambodia and Aryamanna, vanquished the enemy and obtained full redress for the injuries and insults which had led to the war. The Aryamanna here is probably the Burmese Ra-ma-gnya.

Na-ra-pa-tee-tsee-thoo the son of Koo-la-kya-meng ascended the throne in 1167 A. D. This king, a devout Booddhist and one of the most famous monarchs in Burmese history, visited Toungngoo where he repaired and restored the pagodas said to have been built in the time of A-thaw-ka and, leaving his son in charge of

* According to the Arakanese annals this army is said to have been composed of 100,000 Pyoo and of 100,000 Talaing (Phayre's history of Arakan page 39) and in the Peguan annals of 100,000 Talaing (Phayre's history of Pegu page 40). The Pyoo of the Arakan account were most probably Burmans who may still have been known to the Arakanese as Pyoo, and the strength of the force is clearly exaggerated: it consisted, in all probability of both Burmans and Talaing, each petty governor furnishing his quota of men as was and is the usual practice.

† From the general tenour of the inscription discovered at Booddha-gaya by Lt. Col. Burney in 1835 it is clear that the king of Arakan was regarded as a dependant of the king of Burma. A translation of the inscription was made by Lieutenant Colonel Burney, then Resident at Ava, and published at pages 164 and 165 of Volume XX of the Asiatic Researches (1836), and the king of Arakan is there spoken of thus, "Let the lord priest Wara-" dathi fulfill his engagement and let Pyoo-ta-thien-meng assist and have it done". Colonel Burney doubted if Pyoo-ta-thien-meng referred to Lek-ya-meng-nan, but Sir A. Phayre in a note to his History of Arakan adopts the view given in the text.

the government, proceeded to Tavoy where he established Boodhism, erected pagodas, and founded the first city, about twelve miles from the mouth of the river. In his anxiety for the religion of Gaudama he sent an embassy to Ceylon which returned with five priests learned in the scriptures who assisted him in his zealous endeavours. He is said to have ruled from the borders of China to the mouths of the Tenasserim.

He was succeeded by his son Ze-ya-thien-ga who was followed, towards the end of the twelfth century, by Na-ra-thee-ha-pa-de. Soon after he ascended the throne the country was invaded from the north by the Chinese The Emperor of China sent to demand tribute, and the king, no doubt incensed that he should be called upon to acknowledge vassalage to China and further irritated by the insolent behaviour of the messengers, ordered the whole embassy to be put to death. The Chinese monarch at once invaded Burma and captured and destroyed Pagan following the king, who fled to Bassein, as far as Ta-roop-maw, or Chinese point some distance below Prome.* From this event Na-ra-thee-ha-pa-de is known as *Ta-roop-pye-meng* or the king who ran away from the Tartars. For five months the Burman king remained at Bassein when, the Tartars having retired, he returned towards his capital but was poisoned at Prome and was succeeded by his son Kyaw-tswa. In about 1300 A. D. the Shan under three brothers invaded the kingdom and Kyaw-tswa, betrayed by his queen, was forced to become a monk. The Emperor of China sent an army to restore the rightful sovereign, whereupon the three brothers, acting on the advice given to them by a monk that "there can be no dispute " when no matter for dispute remains", cut off Kyaw-tswa's head and shewed it to the Chinese generals who withdrew their forces and returned to China. The once formidable Pagan kingdom was now divided. Arakan and Pegu were completely independent and Burma was parcelled out amongst a number of Shan adventurers.

Pegu.†

The country now known locally as Pegu in ancient times included the whole coast from Hmaw-deng to Maulmain together with the lower portions of the valleys of the Irrawaddy, the Tsit-toung and the Salween, and was known as Ra-ma-gnya or the country of Rama.

Before Gaudama appeared there reigned a certain king Teetha, in the city of Too-peng-na in the country of Karanaka. He

* There can be little doubt that this refers to an invasion by the Tartar hordes of Kublai-khan.

† This history of the Talaing kingdom is little else than a condensation of Sir A. Phayre's History of Pegu published in the Journal of the Asiatic Society of Bengal for 1873.

had two sons, Tee-tha Koom-ma and Za-ya Koom-ma, who determined on abandoning the world and becoming hermits. Leaving their home they went to dwell on separate mountains near the sea side not far from the future site of Tha-htoon. Once when walking on the shore they found two eggs which had been laid and abandoned by a female Na-ga who came up out of the sea. From these issued two children whom the hermits brought up: one died when ten years old but being born again in Mithila became, while yet a child, a disciple of Gaudama. The other, of whom the elder hermit had charge, lived in the forest till he was seventeen when, by the help of Tha-kya* he built Tha-htoon and ruled under the title of Thee-ha-ra-za. By the intercession of him who had in a former existence been the king's brother Gaudama himself, thirty-seven years before he entered Niek-ban, came through the air and visited Tha-htoon. The king and the people of the city listened to the preaching of the Booddha, but the inhabitants of the surrounding country were savage and resentful. This tradition in all probability contains some germs of truth. The king and his people were Talaing immigrants from Telingana, who brought Booddhism with them, but the inhabitants of the surrounding country were Kolarian Moon whom, on their arrival, they found already established.†

The native historians profess to give the names of all the kings who reigned from this time onwards until the country passed to the kings of Pegu.

The first statement in the histories which can be accepted as historical relates to the arrival of Thaw-na and Oot-ta-ra, the two missionaries deputed to Thoo-won-na-bhoom-mee by the third Booddhist council held at Patalipoot in 241 B. C. but the date is eroneously given as the equivalent of 320 B. C. They were denounced by the native teachers but eventually their authority prevailed, the reformed doctrines were triumphant, the pagodas were repaired and pleasant gardens were planted for the resort of the religious.

The only other event of importance which is mentioned in the early history of Tha-htoon is the introduction by Booddha-ghossa of the sacred Booddhist books, which he brought from Ceylon circa 400 A. D.

Concerning the foundation of the city of Pegu the legend relates that at the time when Gaudama, attended by thousands of

* Sekra, the chief of the second dewaloka, answering to Indra in Hindu Mythology.

† Vide ante p. p.

Rahanda, came through the air to visit the king of Tha-htoon the sea flowed over the whole of the low country on which now stand Rangoon and Pegu. Passing over the sea on his return Gaudama noticed a small sand bank shining like a silver islet and thereon a pair of golden han-za (Brahminee geese), and predicted that a great city would be built on that spot. More than nine hundred years after Gaudama entered Niek-ban a foreign ship from Bij-ja-na-ga-ran (*Vizianagaram*) passed the spot and a flock of golden hanza was observed. On their return the commander reported this to Bandurareng the king of the country. By the advice of his teacher the king determined to secure for his descendants the spot where the hanza had been seen. He had a stone pillar, engraved with his name and title, conveyed to the place and deposited in the sea. One hundred and sixty years later, that is in about 570 A. D. Oo-dien-na was king of Tha-htoon. He had succeeded his father to the exclusion of two of his half brothers Tha-ma-la and Wee-ma-la who left Tha-htoon to found a new city, taking with them one hundred and seventy families. They arrived at the site of the silver sand and were joined by three hundred and thirty families from the neighbourhood. Whilst laying out the town they were suddenly joined by two venerable men, who were the Tha-kya Meng (Sekra or Indra) and an attendant dewa, disguised as carpenters. Shortly afterwards appeared a foreign ship which had been sent by Kawatha Nareng king of Bij-ja-na-ga-ran, grandson of Bandurareng. The foreigners claimed the site but the disguised Thakya Meng replied that long before king Bandurareng's stone pillar had been placed there a gold pillar had been buried by the king of Tha-htoon. By his power he at once created such a golden pillar and caused it to sink ten fathoms below the stone pillar. The two were found on digging and the gold pillar being, it seemed, of more ancient date, the foreigners acknowledged that they had no right to the land and departed taking the stone pillar with them. The golden pillar was enshrined in a pagoda called in Talaing *Kyaik-tsa-ne*. The city was founded in 573 A. D. and the elder brother, Tha-ma-la, consecrated king by the solemn ceremony of *bithaka*, or water poured on the body, and assumed the title of Tha-ma-la Koom-ma-ra.

" In the story of the foundation of Pegu and the events which " led to it we appear to have the legendary version of the strug- " gle for ascendency between Brahman and Boodhist. This strug- " gle was still going on in parts of southern India in the sixth " century of the Christian era and it would no doubt be extended

" to the colonies and settlements on the coast of Ramanya. The " kings of Tha-htoon and the principal citizens were of Indian " descent, and they probably participated in the changes which " were going on in the parent country. The foundation of Pegu " by emigrants from Tha-htoon tells both of a dynastic and " perhaps of a religious quarrel. The Booddhist party, eventual- " ly successful, represent the founders of Pegu as being of their " faith and their opponents as heretics and foreigners, though " the latter reproach was, probably, the feeling of a later period. " One cause for the separation from Tha-htoon appears to have " been the Naga, dragon or snake, worship which, as has been " shewn by Mr. Fergusson in his learned work, extensively pre- " vailed about this time in India; and the founders of Pegu are " said to have been of Naga descent, or in other words had added " snake worship to the reverence which, by the precepts of Bood- " dhism, should be shewn only to the relics or memory of the " Booddha."*

Tha-ma-la founded Martaban three years after he had founded Pegu and subsequently built other cities. After he had reigned twelve years his brother Wee-ma-la conspired against him and put him to death. Tha-ma-la left a son aged seven whom his mother preserved and sent to the mountains east of the Tsit-toung river. Wee-ma-la reigned for seven years. In the third year of his reign, 588 A. D., he founded Tsit-toung and in the fifth he repulsed an attack of the king of Vizianagaram. According to the native historians it was arranged that the quarrel should be settled by two champions and the king's nephew came down from the mountains and defeated the champion of the king of Vizianagaram whose forces then retired. The young prince returned to the mountains where he built the city of Katha, and eventually succeeded his uncle in 592 A. D. as Katha Koo-mara. He was remarkable for his attachment to Booddhism; he built pagodas, monasteries and zayats, or public rest houses, excavated tanks and performed many other works of merit, and after a short and quiet reign of seven years died in 599 A. D. and was succeeded by his son Mahimoo Arinda Raza, who was equally pious and who died after reigning for seven years. His successor was his son Mahintha Raza. The "thirty-two cities of Bassein" are mentioned in the accounts of his reign as forming a portion of his dominions, which are said to have extended throughout the whole of Ra-ma-gnya, from Bassein to Martaban. Thirteen kings followed, but the hereditary succession was broken by usurpers. Tha-htoon appears

* Phayre's History of Pegu. Journal Asiatic Society of Bengal, 1873, p. 32.

gradually to have declined but it is by no means clear when and how it passed from the capital of an independent kingdom into a provincial city of the Pegu dominions. The sixteenth king was an usurper named Poon-na-ree-ka (*Brahman-heart*) who is supposed to have ascended the throne in 746 A. D. He is said to have been eminently religious, but he is represented as inclining towards Hindu traditions for he rebuilt the city of Aramana on the site of the present Rangoon, which he renamed Ramanago or city of Rama. He also built Ramawattee, subsequently called Menggaladoon close to Rangoon. He died after a reign of seventeen years and was succeeded by his son Tee-tha. This king "in the " early part of his life was ensnared with the doctrines of Dewadat, " rejected the Beedagat, and would neither worship the pagoda " nor listen to the preaching of the Rahan, nor follow the learning " of the Brahmans. Not content with this, he destroyed the pago- " das, mutilated the holy images and flung them into the river; " he prohibited by proclamation the worship of these or of holy " relics, and threatened with the punishment of death all who " should dare to disobey his decree".* He adopted the Pantheistic doctrine that God is the universe, a doctrine said to be cherished by a sect still existing among the Talaing which rejects the worship of images.†

He was converted by a young girl, Deva Badree, the daughter of a merchant of Pegu, who continued to respect the holy images and relics and who, finding a golden image in the river, took it out and worshipped it in a Zayat. Sent for by the king she was condemned to be trodden to death by an elephant, but the elephant would not injure her; she was condemned to be burnt but the fire would not kindle. The king then said "If the image which " you have dared to take from the water will come through the " air into my presence, and I see it, your life shall be spared, but " if not you shall be cut into seven pieces". The maiden went to the Zayat where the image was and invoking the three treasures (the Booddha, the law and the assembly) and the seven good nat, the image, the maiden and her attendants were straightway transported through the air to the kings presence. Deva Badree then suggested that the king's teachers should fly through the air as she had done; this they were unable to do and the king compelled them all to leave the country, became a devout Booddhist and made Deva Badree his first Queen. Tee-tha died after a reign of twenty

* Phayre's History of Pegu, page 37.

† Mason's Burma. 2nd Edition (1860), page 22.

years. "From this time a blank of about five hundred years occurs in the annals of Pegu, during which the names of no native kings are entered". The two last kings, Poon-na-ree-ka and Tee-tha, "probably represent two periods, the religious ascendancy or religious strife of Brahmanists and Booddhists extending over about three hundred years. The close of Tee-tha's reign would then synchronize with the conquest of Pegu and Tha-htoon by A-naw-ra-hta-tsaw-meng in 1050 A. D., when Pegu became subject to Burma for about two hundred and thirty years".* After recording the death of Tee-tha the historian closes the first part of his narrative. "A new chapter is opened which simply states that the destinies of Han-tha-wa-dee were accomplished and the line of kings broken, and the writer then bursts forth in lamentation over the rule of foreign Burmese kings and their hateful governors. Three of these are mentioned, and the narrative then passes on to events near the close of the fourteenth century of the Christian era, when Mongols and Turks overthrew the Burmese monarchy; Pagan was captured and her king a fugitive".†

Arakan.

As we have already seen Kan-ra-za-gyee, the eldest son of Abhiraza, the son of the first founder of Ta-goung, on leaving his brother Kan-ra-za-ngay in possession of his father's kingdom travelled south and finally settled in the Kyouk-pan hill in northern Arakan. This according to the Arakanese annals occurred in 825 B. C. and there was then in existence a powerful kingdom called Dha-gnya-wad-dee over which fifty-four kings had reigned, from Ma-ra-yoo who founded the kingdom and the dynasty in 2658 B. C.! The legendary account of the birth of this prince resembles in its main features that of the origin of the supposed founder of the Prome kingdom, Dwot-ta-boung. Many years earlier there lived together "in the Hima-won-da forest a monkey and a deer. A violent storm arising they were carried away by a flood and at length floated to the head of the Gat-tsha-ba or Koo-la-dan river and from thence to Khouk-taw-toung a hill on the bank of that stream. There the monkey and the deer entered the forest and lived. The deer produced thirty-two children; some were in human shape, others were *Bhee-loo*; these Bhee-loo ravaged the country, devouring men and women.

"In the country of Ka-pi-la-wot reigned a powerful king Adza-dzun-na, who determined to abandon his kingdom and become a hermit. He retired to the Hi-ma-won-da forest, and

* Phayre's History of Pegu, page 57.

† Phayre's History of Pegu, page 39.

" wandering on southwards reached at last the source of the " Koo-la-dan river, there he determined to live far from human " habitations in devout meditation under the shade of a *pipal* tree. " The wild animals come to do him homage, and amidst a herd of " deer appears a doe called Indamayu (described as descended " from a lion), which in a former existence had been wife to king " Adza-zun-na; it had been foretold by Nat that as the country " *We-tha-li* (Arakan)* suffered from Bhee-loo born of a deer, so " it should be rescued and restored by a man born from a similar " animal. A violent tempest arises; the doe Indamayu is carried " by a flood down the Koo-la-dan and cast on shore near the mouth " of the Mee-khyoung, a tributary stream which joins the Koo-la- " dan in its upper course; there in the midst of the forest she " brings forth a human child. A chief of the tribe called Myoo " (*Mro?*) was out with his dog, which, whilst ranging the forest, " saw the child in the jungle and commenced barking; the Myoo " chief approached, took the child home and adopted him; even- " tually this child married the chief's daughter and being furnished " by the Nats with magic weapons, cleared the lowland country of " the Bhee-loo, who hitherto had ravaged it. He was acknow- " ledge as king, married" the only existing female descendant of the former dynasty destroyed by the Bhee-loo "and built a new " capital which he called Dha-gnya-wad-dee. He was called " Marayu a derivative from his mothers name.

" From this king the Arakanese historians profess to furnish a " list of successive sovereigns without a break up to the time of " the Burman conquest in 1784 A. D."†

On the death of the fifty fourth king, Meng-ngay-pyaw-tha-tsee, three nobles successively usurped the throne and the queen and her two daughters were obliged to fly for safety to the hills: they joined Kan-ra-za-gyee on the Kyouk-pan hill and he married the two daughters. Twenty four years afterwards, in 825 B. C., he left his retreat and driving out the usurpers became king of Dha-gyna-wad-dee, and reigned for thirty-seven years when he must have attained the patriarchal age of one hundred.

After twenty eight kings had reigned for 971 years Tsan-da-thoo-ree-ya ascended the throne and during his reign, between 146 A. D. and 198 A. D., Booddhism was introduced and became the state religion. The historians, though fully aware that Gaudama attained Niek-ban in 543 B. C., as is recorded in their own sacred books with which kings, monks and courtiers are familiar, in utter

* Not to be confounded with the Wethali in India.
† Phayre's History of Arakan.

contempt of accuracy and moved by the vain desire to connect the change of religion with some overt act of the Booddha, do not hesitate to bring him in the flesh to Arakan during the reign of this monarch, Tsan-da-thoo-ree-ya, and to send him thence across the Roma mountains to Prome, where the Burmese, with more respect for history, had brought him during the first half of the sixth century before Christ.

When the Booddha was about to depart Tsan-da-thoo-ree-ya begged him to leave behind him his representative in the shape of an image which should always recall to the minds of his converts and their descendants the accurate lineaments of their benefactor and be a standing evidence of the country having been blessed with his personal presence. The great reformer consented and a colossal image was cast in brass and the magnificent temple of Maha-moo-nee built by the king for its reception: here it remained until the final conquest of Arakan by the Burmese. Tsan-da-thoo-ree-ya died after a glorious reign of fifty-two years and was followed by twenty four sovereigns who pass by like shadows. In 788 A. D. Maha-taing Tsan-da-ra ascended the throne and, acting on the advice of his astrologers, changed the capital in 789-790 A. D. from Dha-gnya-wad dee to Kyouk-hle-ga. The ninth king, Tsoo-la-teng Tsan-da ra, who came to the throne in 951 A. D., conquered Chittagong and, abandoning any attempt at further conquest—at the request of his courtiers say the native historians—he set up a stone pillar to mark the limits of his dominions. After his death a change of dynasty occurred and a chief of the Mro tribe was placed on the throne: to account for this the following story has been invented and is even now gravely related by aged men. The king suffered much from headaches and was assured by his wisemen that these were owing to the fact that having in a former existence been a dog and having died in a country bordering on China his skull had fallen into the fork of a tree the branches of which pressed on it when the wind blew and so caused His Majesty's headaches. The king started at once to find the tree and skull and obtain relief, but before going gave to his wife, whom he left as regent, a magic ring with instructions that in the event of his death whomsoever the ring would fit was to be his successor. Tsoo-la-teng Tsan-da-ra then set out and crossing the Roma mountains he arrived on the bank of the Irrawaddy in Han-tha-wad-dee (Pegu) and proceeded northwards (finding at Prome a prince ruling over the Pyoo tribe, a descendant of Kan Raza-gyee) till he arrived at Ta-goung: here or in its neighbourhood he found the tree and

skull and burnt the latter. On his return, instead of crossing the hills, he proceeded by sea and was drowned off Cape Negrais. The time had come for the employment of the magic ring and it was found to fit three persons. A-mya-too and A-mya-koo, chiefs of the Mro tribe and Pe-byoo the son of the latter; the eldest, A-mya-too married the queen and ascended the throne in 957 A. D. and shortly afterwards killed his brother A-mya-koo. During his reign the country was unsuccessfully invaded from the east, probably by the king of Burma. A few years later, after the death of A-mya-too in 964 A. D. and when his nephew, Pebyoo, had ascended the throne and married his aunt, a Shan prince invaded and conquered the country and drove the king and queen to seek refuge in the hills. For eighteen years, or until 994 A. D., the Shan remained in the country; they then retired carrying with them most of the gold ornaments and images from Maha-moo-nee but, it seems, unable or unwilling to despoil it of its richest treasure, the gigantic image of Gaudama. Now for the first time the Talaing appear on the scene; during this disturbed period they held possession of Than-dwai (Sandoway). Soon after the Shan had retired A-naw-ra-hta, the king of Pagan who had failed in obtaining from China the tooth relic of Gaudama, invaded Arakan in order to obtain possession of the sacred image of Gaudama but he also was foiled his endeavours.

A posthumous son of Tsoo-la-taing Tsan-da-ra then ascended the throne but was killed in 1018 A. D. after a reign of twenty-four years during a second invasion by the king of Pagan, and Khet-ta-reng his brother was placed on the throne. With a view of preventing any break in the descent of the rulers from the kings of Ka-pi-la-vastu Khe-ta-reng is made out to be a son of Tsoo-la-taing Tsan da ra's widow by his nephew whom she married after the death of her fourth husband Pe-byoo, when she must have been of the mature age of fifty. Five kings succeeded in the short space of forty two years and then two nobles usurped the throne when a son of the fifth king regained possession of the kingdom, but in 1078 A. D. the dynasty again lost the throne and the rightful heir, Meng-re-bhoora, fled to Pagan where Kyan-tsit-tha, Ana-raw-hta's son, was reigning. Here he married his sister and a son named Lek-ya-meng-nan was born to him. Kyan-tsit-tha was unable or unwilling to interfere and Meng-re-bhoora died in Pagan. In the meanwhile Theng-kha-ra, the rebellions noble who had driven out Meng-re-bhoora, reigned for fourteen years and was succeeded by his son Meng Than and by his grand son Meng Pa-dee the latter of whom was proclaimed king in 1100 A. D.

Two years later Aloung-tsee-thoo, who had succeeded his father Kyan-tsit-tha as sovereign of Pagan, espoused the cause of Lek-ya-meng-nan and invaded Arakan by sea and by land. After one repulse the Burmans were successful and Meng Pa-dee was killed and the rightful monarch restored to the throne of his father. In return for the aid thus given him he repaired the Booddhist pagodas at Booddha Gaya in Hindustan, and in the inscription he himself caused to be put up he is described in a way which leaves little doubt that he was then to some extent dependent upon his powerful neighbour. He transferred the capital to Loung-kyek, twelve miles south of Arakan (*Mro-houng*) and in 1109 A. D. to Ma-reng. He died in 1109 and was followed by four kings in quick succession, after whom, in 1133 A. D. came Gaw-la-ya to whom, according to the Arakanese histories, the kings of Bengal, Pegu, Pagan and Siam did homage. He died in 1153 A. D. and his reign, therefore, was synchronous with the later portion of that of Aloung-tsee-thoo. There is nothing in the Burman or Talaing annals which in the slightest degree supports the Arakanese views. Aloung-tsee-thoo when he died, a few years after Gaw-la-ya, left to his successor larger dominions than had ever been under the Burman sway before, and over all he ruled with firmness and vigour. Gaw-la-ya's chief claim to distinction rests on his good works in restoring religious buildings: the most noted of his works is Maha-htee, about six miles south of Arakan or Mrohoung, but slightly inferior in sanctity to Maha-moo-nee. His son, Da-tha-raza, who ascended the throne in 1153 A. D., repaired and beautified Maha-moo-nee and restored the image which had been injured in Aloung-tsee-thoo's attempt to carry it away. He died in 1165 A. D. and was succeeded by his son A-nan-thee-ree who is said to have lost his father's and grandfather's extensive empire and to have passed his days in debauchery and riotous living, neglecting all religious and worldly duties. Two years after his accession he was killed in an out-break of his subjects and his brother Meng-hpoon-tsa was placed upon the throne. He reigned for seven years until 1174 A. D. In his reign a Shan army invaded the kingdom but was defeated. He removed the capital to Khyit on the Le-mro. Peng-tsa-ka succeeded in 1174 A. D. and his son Gan-na-roo-baw in 1176 A. D. Three years later he was dethroned by an usurper named Tsa-leng-ga-bo who was killed in the first year of his usupation and Mee-zoo-theng, Gan-na-roo-baw's brother, was raised to the throne. He removed the capital to Peng-tsa close to the present Mro-houng and is alleged to have ruled over

all the neighbouring countries. His rule was beneficent and wise and he was so much beloved by his people that he is surnamed Taing-khyit or "country beloved". The oldest Arakanese coins extant having emblems of royalty engraved upon them without any date or inscription are traditionally said to have been struck during this reign. The succeeding ten kings, far from following his example, were execrated by their subjects; the last of them was deposed in 1210 A. D. and was succeeded by his son, Lek-ya-gyee, who restored the prosperity of the country. Four kings followed and in 1237 A. D. A-lan-ma-hpyoo ascended the throne and two years later removed the capital again to Loung-kyek. He is said to have made war upon Ze-ya-thien-ga king of Pagan and to have received tribute from the king of Bengal. During the reign of his son Raza-thoo-gyee, who commenced to reign in 1243 A. D., the Talaing unsuccessfully invaded Arakan. Nothing worthy of notice occurs till the reign of Nan-kya-gyee, Raza-thoo-gyee's great-great-grandson, who succeeded in 1268 A. D. He so oppressed the people that he was killed by the commander of the body guard in the fourth year of his reign. He was followed by his son Meng Bhee-loo who, as his name Bhee-loo implies, was, if possible, still more hateful than his father. After a reign of four years he was killed by the murderer of his father, who himself ascended the throne and was killed three years later. Meng Dee, then seven years old, son of Meng Bhee-loo, whom his father had endeavoured to kill, now succeeded. It was during his reign that the Shan invaded Pagan and drove Ta-roop-pye-meng to Bassein, and that the Pagan kingdom was partitioned amongst petty Shan chiefs.

CHAPTER VII.

HISTORY.

FROM THE BREAKING UP OF THE BURMAN KINGDOM AT THE CLOSE OF THE THIRTEENTH CENTURY TO THE RISE OF TA-BENG-SHWE-HTEE, OF TOUNG-NGOO, IN THE FIRST HALF OF THE SIXTEENTH CENTURY.

The three Shan brothers who dethroned, and subsequently murdered, Kyaw-tswa were the grandsons of the chief of the petty Shan state of Bhien-na-kha. On his death his son's quarrelled as to the succession and the younger, Thaing-kha-bo, fled with his followers to Burma and settled at Myeng-tshaing, a place about thirty miles south of Ava. Here he had three sons, A-theng-kha-ya, Ra-za-theng-gyan and Thee-ha-thoo, and a daughter. The family was taken into high favour both by Ta-roop-pye-meng and by Kyaw-tswa and by the latter the sons were appointed governors of the districts of Myeng-tshaing, Mek-kha-ra and Peng-lay respectively, whilst the daughter was married to one of the king's sons. After the death of Kyaw-tswa the seat of government was for some time at Myeng-tshaing and it was there that the rebels were besieged by the Chinese army. For several years the three brothers lived together, each governing his own province, the eldest alone having a royal palace and using the insignia of royalty; the widow of Kyaw-tswa in the mean while living at Pagan with her eldest son, Tsaw-hnit, who was allowed to use the title of king. A younger son of Kyaw-tswa, named Meng-sheng-tsaw, fled south to Thayet, of which he assumed the governorship and, the whole kingdom being broken up into petty chieftainships the rulers of which were continually intriguing against each other, was allowed to remain undisturbed and independent. He built a fort, a city and a palace and exercised quasi-royal authority over as much of the country as he could. Disturbed and weakened by division as the country was A-theng-kha-ya was still able to send a force to attack Martaban where Wa-rie-yoo had made himself independent, in order to sieze a white elephant. The invading army, however, was defeated but was enabled to retire with small loss.

The youngest of the three Shan brothers married Meng-tsaw-oo, a widow of Kyaw-tswa, and some years later the second brother, Ra-za-theng-gyan, died; from this time Thee-ha-thoo appears to have worked steadily for the supremacy. He poisoned his brother A-theng-kha-ya and having thus attained sole power he built a new city at Pan-ya, subsequently called Peng-ya—the classical name was Wee-za-poo-ra—where Ava now stands, and when it was completed he and his queen, Meng-tsaw-oo, were invested with regal dignity by formal entrance into the palace, enthronement beneath the white umbrella and solemn pouring out of water. Meng-tsaw-oo's son by Kyaw-tswa, Oo-za-na, was declared Crown Prince. By a second wife, a Shan, he had a son named A-theng-kha-ya, who is sometimes called Nga-ywon-ngay and sometimes Tsaw-ywon. In time the sons received governorships and a strong rivalry sprang up between Oo-za-na and A-theng-kha-ya, the latter of whom, as governor of Tsit-kaing, had shewn himself to be exceedingly headstrong and as early 1315 had declared himself independent. The old king, or rather usurper, is described as "very sagacious. He loved his sons and behaved so as not to "offend any of them. Towards other countries he behaved as one "would if placed over a hot fire; to his own subjects as if to a "cool jar of water placed in one's embrace". He died in 1322 and was succeeded by the son of Kyaw-tswa, the Crown Prince Oo-za-na.

One of Thee-ha-thoo's sons by the murdered Kyaw-tswa's widow, Meng-tsaw-oo, at once commenced intriguing against his half brother, and this continued for twenty years when Oo-za-na, either wearied by the continuous worry or honestly anxious for the attainment of Niek-ban, declared that he was tired of a worldly life and desired to devote the remainder of his days to religion and left the palace by the west gate, a sign of abdication, as Kyaw-tswa II entered by the eastern.

During Oo-za-na's reign, in 1333, Thayet was attacked by the king of Dha-gnya-wad-dee and Meng-sheng-tsaw and his family carried away captive. After some years they were let free and came to Peng-ya soon after his abdication.

Kyaw-tswa, who took the title of Nga tsee sheng (owner of five animals) from possessing five white elephants, married Tsaw-oom-ma, the daughter of the fugitive prince of Thayet, a woman of surpassing beauty, and also a daughter of his cousin the ruler of Tsit-kaing. He reigned nine years and in 1359 was succeeded by his brother Na-ra-thoo, who married Tsaw-oom-ma, his brother's widow.

A-theng-kha-ya, who had made himself independent in Tsit-

kaing in 1315, died after a reign of seven years and was succeeded by his half brother Ta-ra-bya-gyee who, fourteen years later, was dethroned by his son Shwe-doung-tek. Three years later Shwe-doung-tek and his dethroned father were put to death and Kyaw-tswa, the eldest son of A-theng-kha-ya, was made king. This was in 1339 when Oo-za-na was reigning in Peng-ya. After ruling for ten years he was succeeded by his brother Naw-ra-hta Meng Rai who, in seven months, was followed by Ta-ra-bya-ngay, the third and youngest son of A-theng-kha-ya. His reign lasted three years. The daughter of A-theng-kha-ya, named Tso-meng, had been married to Tha-do-sheng-htien and by him had a son, Ra-hoo-la, and two daughters: after his death she married Meng-byouk who was now placed on the throne, and Ra-hoo-la was sent to govern Ta-goung.

When the Burman monarchy was broken up at the end of the thirteenth century Prome and Toung-ngoo as well as Myeng-taaing, Peng-ya, Tsit-kaing and Thayet became independent. The governor of Prome at that time was a grand son of Ta-roop-py-meng and, consequently, a cousin of Kyaw-tswa and a second cousin of Meng-sheng-tsaw the governor of Thayet. The Prome territories extended nearly to Thayetmyo, the northern boundary east of the Irrawaddy being the Nga-hlaing-deng rivulet which debouches nearly opposite to that town. The independence, however, seems, as we shall see, to have been given up without a stuggle.

Na-ra-thoo, the king of Peng-ya, unable by himself to overcome the ruler of Tsit-kaing, called in the Mo-goung Shan from the north who advanced under Thoo-khyeng-bya and took Ta-goung where Re-hoo-la, who had taken the name of Tha-do-meng-bya, was governor. He escaped with difficulty and fled to Tsit-kaing where he was imprisoned by his step father. The Shan continued to advance and made themselves masters of Tsit-kaing, Meng-byouk flying with his court to Kya-khat-wa-ra on the Irrawaddy. The Shan chief, partly on account of not finding as much booty as he expected in Tsit-kaing and partly on the ground that Na-ra-thoo had given him no assistance, turned his arms against Peng-ya which he plundered and then retired carrying the king with him.

The subjects of Meng-byouk were much discontented and Tha-do-meng-bya seized the opportunity and escaped and capturing his step father put him to death. He addvanced against Peng-ya, where Oo-za-na-byoung, an elder half brother of Na-ra-thoo but the son of a concubine, had been raised to throne and had been reign-

ing for three months, took it, put Oo-za-na-byoung to death and in 1364 declared himself king of Peng-ya and of Tsit-kaing. He married Tsaw-oom-ma the daughter of Meng-sheng-tsaw who was thus the wife of four kings in succession, Kyaw-tswa, Na-ra-thoo Qo-za-na-byoung and Tho-do-meng-bya.

The new king, who had no rival in the now reunited kingdom, founded a new city at Eng-wa (Ava) on the left bank of the Irrawaddy a little below the mouth of the Myit-ngay stream and called it Ra-ta-na-poo-ra.* He received the homage of Tsaw-mwon-hnit, the son of Tsaw-hnit and grand-son of the murdered Kyaw-tsaw, who, like his father, had been allowed to reside at Pagan and to retain the name and emblems of royalty but with no power, and extended his territories northwards. According to the Burmese chronicles Toung-ngoo was subject to him but according to the Toung-ngoo histories, Theng-pan-ka, the ruler of that country, was not only independent but was a great and successful warrior who conquered the five provinces of Re-lway, with the Talaing took Prome, and exchanged embassies with the Burmans. Meng Boung, however, who was king of Toung-ngoo some years later, sent presents to Meng-gyee-tswa-tsaw-kai, Tha-do-meng-bya's successor. In 1367, whilst beseiging Tsa-goo which he had failed to take some time earlier, he died of small pox. The throne was now offered to Thee-la-wa the governor of Re-me-theng, but he refused it and the choice then fell upon his brother-in-law, Ta-ra-bya-tsaw-kai, the third son of Meng-sheng-tsaw the founder of Thayet, who was married to Tsit-kaing Tsaw-oom-ma, a daughter of A-theng-kha-ya the first ruler of Tsit-kaing. He was formally consecrated in 1368 and assumed the title of Meng-gyee-tswa-tsaw-kai. He followed in the footsteps of his predecessor, recovered Prome without any difficulty and appointed his brother Tsaw-ran-noung as governor, and exacted presents from the king of Toung-ngoo. He annexed Ka-le and Mo-hgnyeng, when the two chiefs were exhausted by fighting with each other, and, refusing for himself the throne of Arakan which was offered to him by the nobles of that country on the death of Meng Bhee-loo, he appointed his uncle Tsaw-mwon-gyee as tributary king, and on his death appointed Tsaw-mee who, however, was eventually driven out and the Arakanese chose a ruler for themselves and remained independent. He entered into friendly relations with Zeng-mai and had an interview with Tsheng-hpyoo-sheng king of Pegu, exchanging presents and each giving mutual pledges of friendship.

Tsheng-hpyoo-sheng died in 1383 or, according to the Talaing historians, in 1385 and was succeeded by his son who assumed the title of Ra-za-dhie-rit. Louk-bya, the Talaing ruler of Myoung-mya in Bassein, who was violently opposed to the young king, entered into correspondence with Meng-gyee-tswa and successfully incited an invasion of Pegu. From this time onwards till the final subjugation of the Talaing kingdom by A-loung-bhoora in the middle of the eighteenth century the two nations were continually at war.

We have already seen how Pegu was conquered and annexed by the great A-na-raw-hta-meng-tsaw and remained under Burmese dominion for about two centuries and a half. Shortly before the disruption of the Burman kingdom into petty principalities there had been troubles in that part of the kingdom. A-kham-won, said to have been a Burman by descent but to have married into a Talaing family, raised the standard of rebellion in Pegu and defeated two armies sent against him, eventually proclaiming himself king under the title of Thoo-nek-khouk-tsa Ra-za. After a reign of three years he was put to death by his brother-in-law, Leng-gya, who, after holding the palace for eight days, was killed by A-khyeng-won, a brother of Thoo-nek-khouk-tsa Ra-za. A-khyeng-won was now consecrated king under the title of Ta-ra-pya.

At about the same time that A-khyam-won rebelled, or a little before, Martaban had become independent. The Burman governor, A-lien-ma, had been summoned to the capital but had refused to go ; he was attacked and forced to fly and Ta-la-pya was appointed governor in his stead. A-lien-ma escaped to Siam and was restored by the Siamese king, to whom he took an oath of fealty, and put Ta-la-pya to death. The Burman government was then so disorganized that no interference was attempted.

A remarkable character now appears on the scene. There was at Martaban a merchant of the name of Ma-ga-doo who traded to the adjoining countries. He visited Siam and whilst there either captured a white elephant or possessed a female which gave birth to one. He was taken into high favour and entering the service of the king was made governor of the capital. During one of the king's absences he eloped with one of his daughters and settled in his native city of Doon-won on the Bhee-leng river. He soon made the acquaintance of A-lien-ma, the governor of Martaban, whom he treacherously killed.*

* According to General Phayre the date of A-lien-ma's death is given in the Burmese Maha Ra-za-weng as 128, A. D.

"After this there is some obscurity in the narrative as to "the fate of Ma-ga-doo and it might almost be supposed that he "disappeared. But this arises from the respectful reserve of "the chronicler who refrains from stating distinctly that the "*quondam* merchant Ma-ga-doo became king of Moot-ta-ma "(*Martaban*) under the name of Wa-re-ru (*Wa-rie-yoo*)."* He ruled the country with a firm hand and entered into an alliance with Ta-ra-pya who was then reigning in Pegu, each marrying the other's daughter, the two uniting their forces to resist an invasion by a Burmesearmy sent by Ta-roop-pye-meng to coerce his rebellions subjects. The Burmese army was stockaded at Dala and the Peguan army at Syriam and Rangoon. When joined by Wa-rie-yoo's troops an advance in force was made on Dala and the Burmese defeated, driven from their entrenchments, and followed up as far as Padoung. On the return to Pegu the two sovereigns quarrelled and in an action which ensued Ta-ra-pya was defeated and fled but was captured by some villagers. His life was spared but some time later he was put to death on a charge of having conspired against Wa-rie-yoo. Although he had defeated Ta-ra-bya and annexed Pegu yet Bassein on the west, and probably Dala also, with Prome and Toung-ngoo on the north, were independent principalities and the rulers were fairly well matched against each other. Wa-rie-yoo, who had already shewn himself to be a clever intriguer and a successful soldier, now proved his talent for government. Neglecting Pegu he fixed his capital at Martaban knowing that his strength lay in the Shan immigrants into the Salween valley.†

Wa-rie-yoo's great anxiety now was to possess a white elephant and six years after he had proclaimed himself king he succeeded, after much negotiation, in getting one from Siam and at once added to his titles that of "Tsheng-hpyoo-sheng" or Lord of the white elephant. The news reached the then reigning chief of Myeng-tshaing, one of the three brothers who had put Kyaw-tswa to death, and with equal anxiety to own an animal the possession of which would go far to prove his rightful position and would restrain rebellions, he sent a force to Martaban and demanded that the elephant should be delivered to him. The Shan–Burman army was completely defeated and the country was left at peace.

* Phayre's History of Pegu. Journal Bengal Asiatic Society 1873, p. 42.

† "He is claimed as a Mon (*Talaing*) by race though it is probable he was descended "from a Shan family from the eastward which had settled in the valley of the Than-lwin" (Salween). Phayre's History of Pegu: Journal of the Bengal Asiatic Society; 1873, p. 42.

After the death of Ta-ra-pya, Wa-rie-yoo had taken charge of his two grandsons the offspring of his daughter by that sovereign. They, remembering more the death of their father than the kindness of their grandfather, conspired against him and put him to death in 1306 A. D., but were themselves killed by an enraged populace.

Wa-rie-yoo was succeeded by his brother Khwon-law who applied to the king of Siam, as his suzerain, for a ratification of his assumption of the throne and this was granted. His general weakness and incompetence were soon shewn when the ruler of Zeng-mai attacked Doon-won, his own birth place, and his brother, Meng Ba-la, conspired against him. Induced by reports of the existence near the present Maulmain of a wonderful elephant with three tusks he left Martaban in search of it. The gates were at once closed and he himself pursued, arrested and put to death. Meng Ba-la put his own son Zaw-aw-theng-mhaing on the throne. This sovereign, although married to a daughter of the king of Siam, was soon engaged in a war with that potentate and eventually became absolutely independent. He first quarrelled with the ruler of La-boon whose territory he annexed and added Tavoy and Tenasserim, then subject to Siam, to his dominions. In the words of Sir Arthur Phayre thus "commenced the quarrel between "Pegu and Siam, which in long after years led to wars, terribly "destructive to life, and which have been the main cause of the "present depopulation of the country. The quarrel was con-"tinued when Burma succeeded to the rights of Pegu, and last-"ed down to the early part of the present century".* The subsequent conduct of the Siamese government has marked the intelligent appreciation of its rulers, more especially of the late and of the present sovereign, of the advantages of peace and of the futility of engaging in a war with a power so strong, with such a real desire for quiet, and with such a firm determination to protect its own just rights and to ensure, as much as possible, the well being and the advancement in civilization of its subjects, as England. The cordial friendship which has always existed between Siam and England is a standing evidence of the desire to avoid any extension of territory on our part and of the absolute necessity that there was for those so called "iniquitous annexations" of territory in India and Burma, ruled by arrogant and ignorant governments who drew upon themselves the inevitable, and as just as inevitable, punishment of their folly.

* History of Pegu. Journal of the Bengal Asiatic Society, 1873, p. 43.

Zaw-aw-theng-mhaing was succeeded by his brother Zaw-ziep who on his accession assumed the little of Bya-gnya-ran-da and changed the site of the capital to Pegu. A little later he put down a rebellion which had broken out in Bassein, though it is not clear when that portion of the delta of the Irrawaddy west of the Rangoon river was added to the Peguan dominions, but he lost Tavoy and Tenasserim which were reconquered by the Siamese. In 1330 A. D. he was killed in an attack on Prome and was succeeded by an usurper named Dieb-ban who made one of his daughters, Tsan-da-meng-hla, his queen. The usurper was seven days afterwards killed by the Commander-in-chief and was succeeded by E-gan-kan, a son of Zaw-aw-theng-mhaing, who in a few weeks was poisoned at the instigation of the queen. In the confusion the court had been removed to Martaban and Khoon-law, who was governor of Pegu, was invited to come to Martaban to settle matters. His son was married to Tsan-da-meng-hla and proclaimed king as Bya-gnya-law. E-gan-kan having been a grandson of the king of Siam a war ensued on the news of his death reaching that country. According to the Talaing historian the Siamese armies were utterly defeated but according to the Siamese they were highly successful and Pegu was made tributary to Siam. The Talaing accounts are, probably, the more accurate. Troubles were caused by the quarrels of Tsaw-e-lan, the king's son, and Bya-gnya-oo, his nephew, which were only ended by the death of the former. In 1348 the king died and was succeeded by Bya-gnya-oo who assumed the title of Tsheng-hpyoo-sheng. A few years after his accession he successfully repelled an inroad of Shan from Zeng-mai, who had plundered Doon-won and other towns in the valley of the Bhee-leng. Shortly afterwards he sent a mission to Ceylon and is said to have obtained a holy relic of Gaudama though it is more than doubtful if the king of Ceylon would part with any relic.

He quarrelled with Meng Boung, the ruler of Toung-ngoo, but his anger was appeased by presents which that feeble monarch sent him. A few year's later, during the king's absence in the forests hunting for a white elephant of which he had heard to replace the one which had lately died, a rebellion broke out headed by Byat-ta-ba, his half-brother or cousin, whom he had left as governor of the capital. The rebels shut the gates and denied the king admission and as he had but few troops of whom many deserted and as the walls were defended by cannon,*

* According to Sir A. Phayre—History of Pegu, Journal of Asiatic Society of Bengal, 1873, p. 45—this is the first mention of cannon.

he retired to Doon-won leaving his brother-in-law Bya-ta-bat in command. Bya-ta-bat was poisoned by Bya-ta-ba's wife and his successor was shot whereupon the besieging army broke up. Both parties applied to the king of Zeng-mai for assistance and though at first inclined to assist Bya-ta-ba he contented himself with aiding neither. For six years the king remained undisturbed at Doon-won, when Bya-ta-ba, having employed this period in strengthening himself at Martaban, obtained possession of Doon-won by stratagem, and the king escaped to Pegu. Pegu and Martaban thus again became separate and independent territories.

Bya-gnya-oo, probably feeling his inability to recover the south eastern portion of the dominions which he had inherited from his uncle, turned his attention to the administration of that portion which remained to him Very soon difficulties arose, the king's troubles had told upon him, he was ill and worried, and the favourite queen was supreme. One of his sons, Ba-gnya-ngwe, rebelled and called in the aid of Mahommedan adventurers who for many years past had visited the coast. Entrenching himself at Rangoon he defeated an army sent against him by the queen, and the king dying shortly afterwards he ascended the throne without opposition in 1385 A. D., assuming the title of Ra-za-dhie-rit. Thus came to the throne one of the, if not the greatest of all Talaing monarchs: one who stands out grandly in the continual wars between the Talaing and the Burmans, but whose endeavours to consolidate a permanent Talaing kingdom failed before the aggressive Burman.

The governor of Myoung-mya in Bassein, one Louk-bya, a member of the royal family and a bitter opponent of the young king, unable to resist him alone addressed the king of Ava, Meng-gyee-tswa, proposing a combined attack on Pegu and asking only for the husk of the joint conquest, the kernel to belong to the Burman monarch. Meng-gyee-tswa accepted the proposal and despatched a force in two columns, one under his eldest son, the Crown Prince, moving by Re-me-theng and the valley of the Tsit-toung and the other, under his second son, Meng-Tshwe, through Tharawaddy down the valley of the Hlaing. The left column succeeded in taking Pan-gyaw and the right in taking Hlaing, but the Pegu Roma mountains intervened between the two armies and the commanders were unable to unite their forces whilst Louk-bya for some reason did not co-operate. Both columns were defeated by Ra-za-dhie-rit, the right being nearly crushed, and as the rainy season was coming on the Burmans retired. Ra-za-dhie-rit felt

that his resources had been severely strained and he sent an embassy with presents to Meng-gyee-tswa, but this was unsuccessful and in the following year the Burmans again invaded Pegu. On this occasion the advance was under the king in person and was down the valley of the Irrawaddy only, a portion of the army moving by land to Hlaing and another coming in boats. Louk-bya joined at the northern mouth of the Bassein or Nga-won river where it leaves the Irrawaddy between Henzada and Myanoung. The Burmans advanced to Hlaing and found Ra-za-dhie-rit strongly entrenched in Hmaw-bhee, a walled town about half way between the Pegu Roma and the Hlaing river, S. S. E. of Hlaing and about forty miles north of Rangoon. The Burmans were detained in front of this position until the rains set in when they commenced a retreat which soon turned into a disorderly rout and they were hotly pursued by the Talaing as far as Prome.

Ra-za-dhie-rit now (in 1388) took Doon-won, the ruler of which had been in communication with Louk-bya, La-gwon-byeng, Martaban and Maulmain, and in the following year he attacked Louk-bya. Finding Myoung-mya too strong he advanced against Bassein but was driven off, the general in command being killed. After several reverses the king's troops were successful and in 1390 Louk-bya was captured and one of his sons, Louk-sheng, was given up by the governor of Sandoway, to whom he had fled for protection pursued by a Talaing force, and was made a pagoda slave at the Shwe-dagon pagoda. Another of his sons, Byan-kwon, and his son-in-law, Byan-khyee, fled to Ava and were made governors of Tsa-leng and Prome respectively.

In 1391 he advanced to Koo-dwot, now called Myanoung, and drove out a Burman force which had taken possession of the place.

In 1389 Meng-gyee-tswa, the king of Burma, married his son, Meng Tshwe, to the daughter of the Shan Tsaw-bwa of Maw, and from this union was destined to spring a son who should carry fire and flame over Pegu. So terrible was he, and possibly so innocent was Ra-za-dhie-rit's son considered, that a fanciful account of his origin has been invented. Ra-za-dhie-rit, suspecting his son, Paw-law-kyan-daw, of conspiring against him ordered his execution. The Prince went with his executioners to the Shwe-hmaw-daw pagoda in Pegu and after making offerings prayed, " If I have imagined the least evil against my Royal father may " this body when it dies suffer in the eight great hells and in the " hundred and eighty-eight small hells, and may I never meet the " future Bhoora. But if I have not imagined any evil against my

" Royal father then, when this body dies, may I be conceived " again in the womb of a Royal Burman and he born, and when " of age may I conquer and oppress the Talaing country". Then, having drank the water of truth, the prince was at once killed by the executioners. In due time the Shan princess, the consort of Meng Tshwe, gave birth to a son who was the slaughtered son of Ra-za-dhie-rit and who was named Meng Re-kyaw-tswa.

Meng-kyee-tswa died in 1401 after a reign of thirty-three years and was succeeded by his son Tsheng-hpyoo-sheng who, after seven months, was murdered by Nga Nouk-tsan the governor of Ta-goung and was succeeded by his brother Meng-khoung.

We have seen how in Arakan Meng-dee, the son of Meng Bhee-loo, ascended the throne after the death of the usurper the Tsee-tha-beng. He is said to have repelled an invasion by the Shan and Talaing somewhat early in his reign but there is nothing in the chronicles of Burma to shew that there was any such invasion, and the invasion could only have been by the Shan princes then ruling in that country. According to the Arakanese annals the king of Thu-ra-tan named Nga-poo-kheng courted his alliance, but it is very uncertain what is meant. Meng Dee is said to have reigned 106 years or until 1385, but it is impossible to make the Arakanese accounts agree with the Burman and Talaing histories. The Arakan chroniclers relate that during his rule the Shan, Burman and Talaing more than once invaded Arakan and that upon one occasion the Arakanese army took Pagan. Pagan was, undoubtedly, the residence of the representative of the old Pagan dynasty but the seats of government were at Myeng-tshaing and Tsit-gaing till circa 1365 and after that at Ava; nor is there anything in the Talaing anuals tending to shew that during this period the rulers of that nation invaded Arakan. It appears most probable that the long and prosperous reign of Meng Dee really represents a time of much trouble during which both Talaing and Burmans endeavoured to interfere, for in the Burmese records it is stated that on the death of Meng Bhee-loo the king of Burma was applied to and appointed two rulers of the country one after the other, the latter eventually being dethroned and replaced by the grand son of Nan-kya-gyee. The names of the two rulers so appointed, Tsaw-mwon-gyee and Tsaw-mee, do not appear at all in the Arakan records, nor would their rule cover any such lengthy period as they were both appointed by Meng-gyee-tswa-tsaw-kai who reigned thirty-three years. It was during this period that the king of Dha-gnya-wad-dee attacked Thayet and carried away captive its ruler; now Dha-gnya-wad-dee is

the classical name of Sandoway and from the Arakanese annals it appears that the governor of that district rebelled *circa* 1330, but was eventually overcome. It is possible that it was the rebellious governor who invaded Thayet and that it was owing to his rebellion being put down that Meng-sheng-tsaw and his family were allowed to leave Arakan and go to Peng-ya.

At the begining of the fifteenth century differences arose between Arakan and Burma and the sovereign of the former, called Theng-tsa in the Arakanese histories and Htaw-ra-gyee in the Burmese, invaded Burma and penetrated into the provinces of Yaw and Loung-she. A Burman force was sent against him and a rebellion having broken out in his own country he retired but was overtaken and defeated and he himself killed. Taking advantage of these troubles Ra-za-dhie-rit, in 1404, collected a large force and moved up the Irrawaddy, and passing Prome, where Byan-khyee the son-in-law of Louk-bya was in command, laid siege to Ava and despatched a force against Ta-goung, The enterprize, however, failed and the Peguan forces retired without capturing the capital. Both Talaing and Burman accounts agree in stating that it was owing to the eloquent persuasions of a learned monk of Peng-ya that Ra-za-dhie-rit withdrew and that before leaving he pulled to pieces his own royal barge to build a monastery at Shwe-kyek-yek, near Tsit-kaing. According to the Talaing histories the army was not allowed to retire in peace but was much harassed by the Burmans and the king's daughter captured, and that it was in revenge for this that he renewed his attacks as he did the following year: they add that he wanted to attack Prome during the retreat but his generals dissuaded him, pointing out that the army was disorganized. It seems probable, therefore, that the first invasion was a complete failure and that the Talaing forces retired in disorder and that the second was a revival of the first attempt.

He advanced to Prome and laid siege to it, cantoning his army on the north; the Burmese succeeded in revictualling the town and Ra-za-dhie-rit then moved his head quarters to the west bank of the Irrawaddy leaving a small detachment in his former camp, against the advice of his generals, and harried the country round, burning Mye-dai, Thayet and other towns still further north. The small detachment was attacked by the king of Burma, who had come down to defend Prome, and annihilated but the king of Pegu was still master on the river and enabled to cut off all supplies and Meng Khoung was thus forced to sue for peace. At first Ra-za-dhie-rit refused but, persuaded by two of his wives,

he at last consented and the two kings proceeded together to the great Shwe Tshan-daw pagoda were they solomnly promised to observe peace The boundaries between the two countries were then fixed and Prome acknowledged to be Burman. A short time afterwards Ra-za-dhie-rit married Meng Khoung's sister who was sent down to Pegu *viâ* Re-ma-theng and the valley of the Tsit-toung.

The peace was not of long duration. Thee-ree-ze-ya-thoo-ra, the brother of the king of Burma, took offence at his nephew, the king's son, being declared Crown Prince and raised a rebellion which was speedily suppressed. Although he was pardoned he fled to Pegu and took refuge with Ra-za-dhie-rit, whose sister he had married. This excited the anger of the Burman monarch and he made arrangements for attacking Pegu, urging as pretext that notwithstanding the friendly understanding between the two countries a Talaing garrison had been left near the frontier and that Ra-za-dhie-rit had ceased to send presents. He sent letters to the ruler of Zeng-mai urging a simultaneous attack but the messengers were intercepted and killed.

Affairs in Arakan were now in great disorder. After the death of Htaw-ra-gyee usurper succeeded usurper for some years but at last the rightful heir was restored and the succession continued till a king named Meng Tsaw-mwon ascended the throne. A rebellion broke out against him and the rebels called in the aid of the Burmans. Meng Tsaw-mwon fled to Bengal and the Burmans remained undisputed masters of the country.. Meng Tsaw-mwon's son, Na-ra-miet-hla, took refuge in Pegu with Ra-za-dhie-rit who sent an army into Arakán, defeated the Burmese, captured Ka-ma-roo, Meng Khoung's son-in-law, who had been appointed governor with the title of A-na-raw-hta, with his wife and family and placed Na-ra-miet-hla on the throne. A-na-raw-hta was put to death and his wife taken into Ra-za-dhie-rit's palace.

In the meanwhile Meng Khoung had been engaged in putting down a Shan rebellion. On learning what had taken place in Arakan he advanced against Pegu *viâ* the Tsit-toung valley. The Talaing army moved against him but being repulsed retired to Pan-gyaw and the Burmans ravaged the country of which they were in possession. When the rainy season came on the troops began to suffer considerably and Meng Khoung, thoroughly frightened by a sudden night attack on his camp, ordered a retreat which soon became a rout. "The army became like a bale of "cotton unloosed to the wind". One of the queens was captured and married to Ra-za-dhie-rit. Next year another unsuccessful

invasion took place and in 1410 the king's eldest son, Meng Re-kyaw-tswa, who is supposed in a previous existence to have been the son whom Ra-za-dhie-rit put to death, descended the Irrawaddy in command of a large army and fleet and entered Bassein but failing to take Myoung-mya or Bassein returned to Prome and thence crossed into Arakan and defeated Na-ra-miet-hla who fled to Bengal. Arakan was then placed under Burman governors. Ra-za-dhie-rit, who had been detained in Martaban by a threatened invasion from the eastward, now sent a force into Arakan which took Sandoway and after driving off a Burman force which had marched to its relief, pushed on to the capital which the Burman governor abandoned.

A rebellion had broken out amongst the Shan who had called in the aid of the Chinese and the Burman forces were thus fully occupied. Ra-za-dhie-rit, taking advantage of this, advanced against Prome which was still held by the son-in-law of Louk-bya, but was recalled by the news of an invasion by the Siamese. He left his son Bya-gnya Pa-thien in command who withdrew to the other side of the river where he was unsuccessfully attacked by the Burmese under Meng Khoung and Meng Re-kyaw-tswa. The success of the Peguans was greatly due to their possessing fire arms. The Burmese then blockaded the Talaing. Ra-za-dhie-rit arrived with reinforcements and it was arranged that there should be a fair fight between two war boats one on each side, but the Talaing boat was treacherously attacked by four Burman boats and the Talaing forces then retreated and were pursued by Meng Re-kyaw-tswa who occupied Dala, Rangoon, Syriam and Hmaw-bhee and to whom the whole of the western delta of the Irrawaddy submitted; king Meng Khoung now came down himself. Several indicisive actions took place and the Shan Tsaw-bwa Nga-thai-wee, instigated by Ra-za-dhie-rit, having invaded the upper country the Burman army was withdrawn. In the meanwhile the Talaing forces had retired from Arakan but against Ra-za-dhie-rit's wishes.

The following year a Burmese column under Meng Re-kyaw-tswa, with one division commanded by the king of Arakan, again came down the Irrawaddy and captured Khe-boung in Bassein and invested Dala which was held by Bya-gnya Dala, a son of the Peguan monarch, and some what later took Bassein and Myoung-mya. The king of Toung-ngoo also invaded Pegu but was met at the frontier and driven back. The Burman commander then attacked Syriam, which was defended by Bya-gnya-ran a brother of Bya-gnya Dala, but was beaten off. The garison of Dala were starving and at last Ra-za-dhie-rit, who had retired to Martaban

as the astrologers assured him that the stars were unpropitious, recovered from his alarm. This, probably, was partly due to the fact that the Chinese had invaded Burma in order to recover the wives and children of two Shan chiefs who had been taken prisoners by the Burmans as a punishment for their husbands and fathers having attacked another Shan chief who was tributary to Burma. At the suggestion of the Chinese the question was settled by a single combat between a horseman on each side. The champion of the Burmese was a Talaing of high rank named Tha-mien-pa-ran who had been taken prisoner by Meng Re-kyaw-tswa in 1413. The Talaing was victorious and the Chinese retired.

One of his officers, Ai-mwon-ta-ra, pretended to desert to the Burmese and being well received managed to enter Da-la during a skirmish; having communicated with the commander he had himself tied up as a corpse and placed on a raft and then floated in safety through the Burmese lines and reported to the king what he had seen. Ra-za-dhie-rit advanced against the Burmans and forced them to raise the siege. They retired persued by the Talaing and made a stand at Tsha-be-tsa-kan and in the action which followed Meng Re-kyaw-tswa was surrounded, mortally wounded in the thigh and taken prisoner, He was kindly treated but died next morning, on the 4th increase of Ta-goo (April 1416). The Burmese forces continued the retreat. At the request of Meng Khoung Meng Re-kyaw-tswa's bones were dug up, enclosed in a golden vase and sent under a white umbella in a royal boat to Ava.* Thee-ha-thoo, another son of Meng Khoung, was then declared Crown Prince.

In 1417 another expedition was sent against Pegu and Thee-ha-thoo was placed in command. An attack on Syriam failed, but Rangoon and Hmaw-bhee were taken and the prince entrenched himself at the latter but finally withdrew taking with him Bya-gnya-tsek, the king's son, whom he had made prisoner.

The two countries were thoroughly exhausted by the perpetual wars which seem to have been mainly the result of the ambition of the Burmans for at first Ra-za-dhie-rit was fighting purely in self defence and though he subsequently invaded the countries of his northern and western neighbours there was no attempt made at permanent annexation and there is little reason to suppose that after the peace of Prome the Talaing would have attacked Burma had they been left alone, and as we shall see, the next war was bought on by the Burmans. Peace was maintained

* According to the Talaing histories the golden vase containing the bones was sunk at the mouth of the Rangoon river.

for six years. Meng Khoung and Ra-za-dhie-rit devoted themselves to religion and good works and to the reorganization of the administration. Meng Khoung died peaceably in 1421 after a reign of twenty one years and Ra-za-dhie-rit in the following year, from an accident whilst elephant hunting, after a reign of thirty eight years.

Meng Khoung was succeeded by his son Thee-ha-thoo who assumed the title of Tsheng-hpyoo-sheng. Ra-za-dhie-rit was succeeded by his son Bya-gnya-dham-ma-ra-za against whom two of his brothers, Bya-gnya-kheng and Bya-gnya-ran, immediately rebelled and seized Dala and Rangoon of which they were, respectively, governors. The second made his peace and was declared Crown Prince but the first called in the Burmans who occupied Dala. Owing to the harsh and domineering conduct of the Burman commander a quarrel arose, the Burman forces were driven out, and Bya-gnya-kheng made his submission and was forgiven. Shortly afterwards he was transferred to Martaban and Bya-gnya-ran was placed in charge of Dala, Bassein and Tharrawaddy. In the same year a larger Burman force was sent down, upon which Bya-gnya-ran entered into an alliance with the Burman king and gave him his sister, Tsaw-bo-me, in marriage. In 1425 Bya-gnya-dham-ma-ra-za, who had remained at Pegu exercising no power or authority, was poisoned by one of his queens and Bya-gnya-ran ascended the throne as Bya-gnya-ran-khek, his brother remaining governor of Martaban.

The marriage of the Burman king with Tsaw-bo-me seriously angered his first wife who called in the Shan and the king was wounded in the action which ensued and died soon after, having reigned four years. The Shan were driven out and an infant son of the deceased sovereign declared king. The chief queen called in the chief of Ka-le who killed the child and seized the palace, but he was attacked by the chief of Mo-hgnyeng and forced to fly and he died on his way to Arakan. The new king, who came to the throne in 1426, took the name of Mo-hgnyeng Meng-ta-ra. He claimed to be descended from the old royal family of Pagan and from the Shan ruler of Peng-ya Nga-tsee-sheng. He had much trouble with several of his provinces: the rulers of Toung-ngoo had for a long time been practically if not nominally independent, and shortly after Mo-hgnyeng Meng-ta-ra's accession Theng-kha-ra, who was then reigning over that country and whose younger brother was governor of Poungday, entered into an alliance with the king of Pegu for a joint invasion of Burma, the arrangement being that the king of Toung-ngoo should ascend the throne of Ava

and acknowledge himself the vassal of the Talaing ruler. According to the Peguan historians the combined forces captured Prome but peace was made and Bya-gnya-ran-khek married a daughter of the Burman sovereign: nothing is said of what became of Prome. According to the Burmese, on the other hand, Prome was not taken, but the king of Pegu gave up the governor of Poungday. According to the Toung-ngoo accounts Prome was captured and looted. The two kings were now occupied in regulating the affairs of their kingdoms. Finding the reckoning of time much deranged the calendar in Burma was set right by the somewhat primitive and disorganizing method of striking out two whole years and 800 (1438) became 798. The Arakan king died in 1439 and the Peguan in 1446 after a reign of twenty years.

Mo-hgnyeng Meng-ta-ra was succeeded by his son Meng Re-kyaw-tswa who deposed Meng-tsaw-oo king of Toun-ngoo and replaced him by a Shan named Ta-ra-bya. He himself died after a reign of three years and was succeeded by his son Thee-ha-pa-de, who was at that time governor of Prome and who took the title of Bhoo-reng Na-ra-pa-dee. He quelled a rebellion in Re-me-theng and in 1444 defeated a large Chinese army at Koung-toon a few miles south of Bha-maw. But the governor of Re-me-theng again rebelled and another Chinese force invaded Burma, demanding the surrender of Tho-ngan-bwa, Tsawbwa of Mo-goung, whose grand-father had been in rebellion against the Emperor of China. It would seem that the king expressly admitted that Mo-goung, which now undoubtedly forms a part of Burma, was once tributary to China, but in his predecessor's reign it was independent. The king offered to give up Tho-ngan-bwa if the Chinese would crush the rebellion in Re-me-theng. This they did and as Tho-ngan-bwa had taken poison his dead body was handed over to them; this they disembowelled, dried and took away with them.

On the death of Bya-gnya-ran-khek of Pegu in 1446 his son Bya-gnya-kheng escaped to Burma where he was hospitably received and remained there till he succeeded in 1453. In 1454 Bhoo-reng Na-ra-pa-dee had a friendly interview with A-lee-kheng, who is called king of Arakan but who, as we shall see directly, was a native of India. From 1458 onwards he was engaged in wars with Toung-ngoo and with the Shan and in 1468 he died at Prome from the effects of a wound which he received in a struggle with his son who had raised a rebellion. He was succeeded by his eldest son who assumed the title of Bhoo-reng Ma-ha-thee-ha-thoo-ra, who was principally occupied during his twelve years

reign in preserving his authority in Toung-ngoo, in quelling outbreaks amongst the Shan, and in keeping his rebellious brother in order in Prome. He was succeeded in 1480 by his son, Doo-tie-ya Meng Khoung.

The king of Arakan who fled to Bengal when the Burmans attacked his country had not been restored by the Talaing whose troops had to be withdrawn in consequence of the Burman successes in the delta of the Irrawaddy. During his exile he materially assisted his host in several ways and greatly ingratiated himself with him and, some time after the Talaing withdrew, a force was despatched to restore the rightful sovereign and the command was given to one Ali or Wali Khan. Ali Khan was faithless to his trust; he joined with some Arakanese officials and usurped the government of the country. He appears to have been generally accepted for, as noted above, he had an amicable interview with Bhoo-reng Na-ra-pa-dee in 1454 and in the Burmese annals is described as king of Arakan, *sub nomine* A-lee-kheng. He was, however, attacked from Bengal and killed and Na-ra-miet-hla was restored but as tributary to his Aryan friend and "from this time " the coins of the Arakan kings bore on the reverse their names " and titles in the Persian character". Na-ra-miet-hla transferred the capital to Myouk-oo, better known as Arakan, where it remained till the final conquest of the country by the Burmans in 1784.

Bya-gnya-ran-khek of Pegu died in 1446 and was succeeded by his nephew, the son of Tsaw-bo-me by her first husband, Bya-gnya-wa-roo. His cousin Bya-gnya-kheng quarrelled with him and fled to Ava where he remained during the four years of his cousin's reign when, assisted by Bhoo-reng Na-ra-pa-dee, he ascended the throne of his ancestors and died in 1453 and was followed by his cousin Hmaw-daw. Hmaw-daw put to death every member of the royal family on whom he could lay his hands and was himself killed after a reign of seven months.

The marriage of Tsaw-bo-me, sister of Bya-gnya-ran, with the king of Burma has already been alluded to. After living at Ava till about 1439 she became dissatisfied with her position and, aided by two Booddhist monks, she fled to her brother's court in Pegu where she was received with distinction and thenceforward is known as Sheng-tsaw-boo. On the death of Hmaw-daw she was raised to the throne amidst the rejoicings of all the people and with the congratulations of the neighbouring potentates, amongst others of the rulers of Ceylon and of Bij-ja-na-ga-ran with which countries there was much commerce. The country now had rest as

the queen devoted her attention to improving the administration and to the performance of good works. The Shwe Hmaw-daw and Shwe Da-gon pagodas were repaired and beautified and justice was properly administered. One of the monks became a laymen and, being declared Crown Prince, married the queen's daughter, and, fearing that the other monk might raise a rebellion, he had him put to death. The Crown Prince ruled the country from Pegu and the queen retired to Rangoon where she built herself a palace and died after reigning three years. The Crown Prince succeeded her and assumed the title of Dham-ma-ze-dee. He is celebrated for his wisdom and for his intercourse with foreign countries, having received embassies from China, Siam, Ava and Ceylon. In his reign Hmaing-loon-gyee, or the country on the east bank of the Salween, was added to the Peguan Empire. He died in 1491 after a prosperous reign of thirty one years and was buried with the highest honours.

The events in Toung-ngoo were destined to have the most momentous effects on the kingdoms both of Ava and of Pegu. It has already been stated that the rulers of this principality were sometimes independent, sometimes more or less under Burma and sometimes under Pegu, and that Mo-hgnyeng Meng-ta-ra of Burma had appointed as governor a Shan named Ta-ra-bya. On Ta-ra-bya's death, in 1445, the king of Burma appointed his successor, but the rulers were in continual rebellion. When Doot-tie-ya Meng Khoung ascended the throne of Burma, in 1480, the ruler in Toung-ngoo was Tsee-thoo-kyaw-hteng. Doo-tie-ya Meng Khoung assumed the title of Thee-ree-thoo-dhamma-ra-za. His reign was a troublous one: the governors of Re-me-theng and of Tsa-leng rebelled, the Tsaw-bwa of Mye-doo declared himself independent and, worse than all, the king's uncle, Tha-do-meng-tsaw, who was governor of Tharrawaddy, went to Prome, declared himself king and advanced on the capital. At Ma-gwe he was met by the king and after a lengthy negotiation they separated, but without having come to any definite arrangement. A few years later the king associated his son with him in the government, giving him equal power and authority with himself. Tsee-thoo-kyaw-hteng of Toung-ngoo had died in 1481, one year after Doo-tie-ya Meng Khoung's accession and the successsion of Tsee-thoo-ngay was confirmed. Meng-gyee-gnyo, the son of the governor of Re-me-theng, had been sent to his uncle, Tsee-thoo-ngay, and on the latter making arrangements to throw off the merely nominal Burmese yoke he rebelled against him and put him to death in 1485. To his message of homage Doo-tie-ya Meng Khoung replied that he did

not want to interfere with the internal arrangements of Toung-ngoo and sent him a white umbrella, one of the insignia of royalty.

Dham-ma-ze-dee of Pegu was succeeded, in 1491, by his son Bya-gnya-ran, who made an incursion into Burma and subsequently attacked Toung-ngoo. The king applied to Burma for aid but before it arrived he defeated the Talaing army whereupon the king of Burma sent him all the other insignia of royalty and declared him absolutely independent. Doo-tie-ya Meng Khoung died in 1581 after a reign of twenty one years. At his death he possessed little authority beyond the country in the immediate neighbourhood of Ava. He was succeeded by his second son Ma-ha-ra-za-thee-pa-dee, also known as Shwe-nan-sheng Na-ra-pa-dee. He was attacked by the Tsaw-bwa of Mo-hgnyeng who took Mye-doo and the ruler of Prome declared himself independent. Shortly afterwards some rebellious nobles fled to Toung-ngoo and induced the then reigning sovereign, Meng-gyee-gnyo, and the ruler of Prome to take up their cause and in 1505 they attacked Tsa-le but were defeated by the Tsaw-bwa of Oon-boung whom the Burman monarch had summoned to his aid. The Tsaw-bwa of Mo-hgnyeng, who had become very powerful, made himself master of Ta-ba-yeng and attacked Bha-maw which belonged to Oon-boung. The king advanced against him but his troops were joined by those of the Tsaw-bwa of Ka-le, Toung-dweng-kyoung and Meng-kheng and the royal forces were utterly routed. The whole country was now in a state of rebellion. The Mo-hgnyeng Tsaw-bwa descended the Irrawaddy as far as Thayet and crossing to the left bank carried back the king of Prome, Tha-do-meng-tsaw, whom he made king of Burma, the rightful monarch flying to the north-east. The Mo-hgnyeng Tsaw-bwa returned to his own territory and Tha-do-meng-tsaw, unable to maintain his position, retired to Prome. Shwe-nan-sheng Na-ra-pa-dee returned and he was killed in 1526, during a second irruption of the Mo-hgnyeng Shan, by Tho-han-bwa the son of the Tsaw-bwa.

Bya-gnya-ran of Pegu died in the same year and was succeeded by his son Ta-ka-rwot-bee.

The Mo-hgnyeng chief on withdrawing left his son, Tho-han-bwa, as king of Burma. In 1530 Meng-gyee-gnyo of Toung-ngoo died and was succeeded by Meng-ta-ra-shwe-htee, who subsequently conquered Pegu and Ava.

At this period, therefore, the Burman and Talaing dominions were divided into four independent kingdoms:—Burma, governed by the Shan, Tho-han-bwa; Prome, by Bhoo-reng-htwe and Toung-ngoo, by Meng-ta-ra-shwe-htee, both of Burman-Shan descent; and

Pegu, by Ta-ka-rwot-bee. Toung-ngoo had for many years been the resort of the Burmans who escaped at each successive usurpation at Ava, and thither fled numbers of Booddhist monks when Tho-han-bwa attempted a general massacre of their order. Both the people and the rulers became more thoroughly Burman than those of the rest of Burma, and the king of Toung-ngoo thus became known to Europeans as the king of the Bramas or Burmas.

The earliest European to arrive was Marco Polo who came *viâ* Yunan and who speaks of Pagan as the capital of a great kingdom and his visit must have taken place not long before the murder of Kyaw-tswa and the parcelling out of the kingdom by the Shan. We hear nothing more till *circa* 1430 when Nicolo di Conti landed in Arakan and proceeded thence across the Roma to Ava and from Ava down the valley of the Tsit-toung to a port "called Xeythona". This Sir Arthur Phayre conjectures to have been Tha-htoon which was an ancient and celebrated port, yet it can hardly have been on the coast so late as the middle of the fifteenth century. The next traveller is Athanasius Nitikin, a Russian, but he gives little information and none of any value. Hieronimo da Santa Stefano and Hieronimo Adorno came to Pegu in 1495 when Bya-gnya-ran was on the throne. Here they were detained and Adorno died on the 27th December 1496. Of the king da Santa Stefano says. "Here is a great lord who possesses " more than ten thousand elephants and every year he breeds " five hundred of them. This country is fifteen days journey by " land from another called Ava in which grow rubies and many " other precious stones. Our wish was to go to this place but " the two princes were at war so that no one was allowed to go " from one place to the other". The war here alluded to was when Bya-gnya-ran attacked Toung-ngoo and his forces were defeated before the aid sent by Meng Khoung, king of Ava, had arrived. To reach Ava by land, as da Santa Stefano seems to have thought of doing, he would have had to pass through Toung-ngoo. Just about the same time Ludovico Barthema of Bologna was in Pegu, for he also speaks of Pegu and Ava being at war and there was no other war during Bya-gnya-ran's reign (1491-1526) unless indeed his "pilgrimage" at the head of a large army up the Irrawaddy to the Shwe-zee-goon pagoda at Pagan can be meant, but this is very improbable. Barthema was followed by the Portuguese Ruy Nunez d'Acunha, sent by Albuquerque in 1511. In 1517 Giovani de Sylvera, another

Portuguese, was invited to Arakan and went to Chittagong, then a port in that country. In 1519 Antonio Correa concluded a treaty with the king of Pegu at Martaban. Odoardo Barbessa was here *circa* 1520 and he speaks of Toung-ngoo as *Verma*, i. e. Burma, and as distinct from Ava.

All these travellers describe the Peguan king as of great power and wealth and Pegu as a city of great magnificence. Luigi Vertomannus, who was here in 1503, speaks of Bya-gnya-ran as sovereign of a great "magnificence and generosity" and adds. "It is in a manner incredible to speak of the rich jewels, " precious stones, spinels and especially rubies which he weareth " surmounting in value any great city."

We have now arrived at a period when Portuguese adventurers found their way into the armies of the contending sovereigns and, like true soldiers of fortune, fought for any body, against any body and on opposite sides. The king of Arakan was fully occupied in keeping his country quiet and in watching events in Bengal; the kingdom of Ava was in the utmost disorder and its state admittedly desperate; and Ta-ka-rwot-bee (the Dacha Rupi of some European writers), who ascended the throne of Pegu in 1526, gave himself up to pleasure.

CHAPTER VIII.

HISTORY.

FROM THE RISE OF TA-BENG-SHWE-HTEE, OF TOUNG-NGOO, IN THE FIRST HALF OF THE SIXTEENTH CENTURY TO THE RISE OF A-LÓUNG-BHOORA IN THE MIDDLE OF THE EIGHTEENTH CENTURY.

Meng-gyee-gnyo of Toung-gnoo, who had been declared independent by his suzerain, the king of Burma, Doo-tie-ya Meng Khoung, had been succeeded in 1530 by Meng-ta-ra-shwe-htee or, as he is otherwise called, Ta-beng-shwe-htee. Two years later the Mo-hgnyeng chief again put his troops in motion and descending the Irrawaddy, accompanied by his son Tho-han-bwa who had declared himself king of Burma after the death of Na-ra-pa-dee, son of Doo-tie-ya Meng Khoung, attacked and captured the ruler of Prome, Bhoo-reng Htwe, who had succeeded his father Tha-do-meng-tsaw (who as we have seen had aspired to the throne of Burma and, aided by the Shan chieftain, had occupied the Royal palace for some days) and carried him away captive. Bhoo-reng Htwe escaped but his son, Na-ra-pa-dee, shut the gates of Prome against him and he died in the forests on the banks of the Na-weng not far from his capital.

In 1534 Ta-beng-shwe-htee of Toung-ngoo besieged Pegu but was driven off by the Peguans commanded by two Shan named Bya-gnya-law and Bya-gnya-kheng. The following year he again invested it but the garrison had been reinforced by some Mahomedan and European adventurers and he was again foiled. In 1536 he again invaded the country, defeated the king in the plains of Kaw-lee-ya, north of Pegu and now in the Shwe-gyeng district, and after an unsuccessful investment of the town passed on and captured Rangoon, Bassein, Myoung-mya and other fortified places in the delta of the Irrawaddy; as soon as the rains commenced he retired. The next year Ta-ka-rwot-bee thought to ward off another invasion by sending a letter proposing peace. It was entrusted to the two Shan who had defended Pegu in 1534 who proceeded to Toung-ngoo. As they received no reply they withdrew and Ta-beng-shwe-htee thereupon wrote to them as if they

were traitors to their master and caused the letter to fall into that master's hands. Both were put to death and the Toung-ngoo monarch again attacked his neighbour. Ta-ka-rwot-bee enlisted the services of Ferdinand de Morales, who had been sent by the Portuguese Viceroy to trade, but the Peguan forces were defeated, Morales slain and the town taken. The Talaing were again defeated near Koung-ro and Ta-ka-rwot-bee then fled to Prome where he was well received and Ta-beng-shwe-htee proceeded to complete his conquest of Pegu. He besieged and took Martaban having with his army some Portuguese under Giovani Cayero, whilst others under Seixas formed a portion of the garrison. After a siege of over seven months the town capitulated and was given over to plunder, the governor, Tsaw-bya-gnya, and his family and many others being brutally slaughtered. Having appointed a governor and made arrangements for protecting the eastern frontier Ta-beng-shwe-htee moved up the Irrawaddy against the united forces of the kings of Ava and Prome and such as remained to the king of Pegu. The army of Tho-han-bwa, the Shan usurper in Ava, was defeated by a strong force under the Talaing general Bhoo-reng-noung whilst an Arakanese force which attempted to raise the siege of Prome was defeated and driven back and thereupon the Arakanese fleet which had come round to Bassein to cause a diversion withdrew. Ta-beng-shwe-htee had some Portuguese to aid him, amongst whom the notorious Ferdinand Mendez Pinto claims to have been, but he does not appear to have had much respect for them for on one occasion he put to death 2000 (or as Sir A. Phayre plausibly suggests 200) who had allowed an advanced work to be captured by the besieged and eighty cannon to be carried off. Eventually the town was taken and according to the Burmese historians the king and queen were sent to Toung-ngoo and nothing further is said of them. The Portuguese account is very different and, though no doubt exaggerated is, probably, nearer the truth. "The queen "was publicly whipped and delivered up to the lust of the soldiers "until she died. The young* king was tied to her dead body "and cast into the river. The same was done with 300 gentle-"men, after stakes were drove through their bodies."

* The king was Sheng Thayet, who had taken the title of Meng Khoung, a younger brother of Na-ra-pa-dee, grandson of Tha-do-meng-tsaw who had for a few days usurped the throne of Ava, and was consequently a scion of the Burman-Shan rulers and descended from the Shan family which practically dethroned Kyaw-tswa son of Na-ra-thee-ha-pa-de. The queen who was older than the king (hence possibly the expression in the Portuguese history "the *young* king") was a daughter of Tho-han-bwa, son of the Mo-hgnyeng Tsaw-bwa and ruler of Ava. Sheng Thayet, his earlier title, possibly indicates that he had, before his elevation to the throne, been governor or Myo-tsa (eater of the revenues of) Thayet

Having appointed as governor of Prome a brother of Bhoo-reng Noung with the title of Thoo-do-dham-ma-ra-za Ta-beng-shwe-htee returned to Pegu and, after being consecrated as king and receiving the homage of the various governors, he remained satisfied for the time being with the bloodshed which he had caused and the cruelties of which he had been guilty and devoted himself, like not a few European potentates of his own stamp, to works of religion and art. He cast an image of Gaudama in pure gold and then built a palace.

When Tho-han-bwa was defeated he had abandoned the king of Prome and returned to Ava. His character is thus drawn in the Royal History. "He was of a cruel and savage disposition. He " spared not men's lives. He respected not the three treasures. Pa- " godas, he used to say, are not the Bhoora but merely fictitions " vaults in which the Burmese deposit gold, silver and jewels; so he " dug into and rifled those shrines of their treasures. The Hpoon- " gyee, too, he used to say, having no wives and children, under pre- " tence of gathering disciples collect guards around them ready to " rise in rebellion. So he built a number of sheds on the plain of " Toung-ba-loo and pretending to do honour to the Hpoon-gyee in- " vited all those round Ava, Tsa-gaing and Pan-ya to a feast. Then " surrounding them with an army he had them all slaughtered. " He then seized all the books in their monasteries and had them " burned. But some of the Shan had pity in the Hpoon-gyee and " many thus escaped to Prome and Toung-ngoo. More than three " hundred and sixty were killed, but more than a thousand escap- " ed". He was murdered by some of his Burmese subjects in 1542-3 and was succeeded by the Tsaw-bwa of Oon-boung, Koon-mhaing-ngay, a descendant of the chieftain who interfered for the protection of the last king of the dynasty of the three Shan usurpers of the end of the 13th century, who seems to have been elected by the Burmese officials. He was supported by his Shan neighbours and relying on their aid he attacked Pegu. The governor of Prome shut himself up in the town which was invested but was relieved by Ta-beng-shwe-htee whose victorious forces under Bhoo-reng Noung advanced as far as Ava but eventually withdrew. The whole country as far as Pagan, however, was annexed.

Ta-beng-shwe-htee now returned to Pegu where he was formally consecrated Emperor, the rulers of Prome, Toung-ngoo and Martaban doing homage, and the successful general Bhoo-reng Noung being declared Crown Prince.

The great conqueror's attention had been fully occupied by his wars with Ava and Prome and with the consolidation of his

power in Pegu and beyond taking precautions against a sudden attack he had not had time to turn his attention to Tavoy and Tenasserim, so often ravaged by the Siamese and by whatever ruler governed Pegu, or to Arakan against which he had cause of complaint by reason of its sovereign having aided his enemies during the siege of Prome. Just about this time the king of Arakan died and was succeeded by the heir apparent. This succession caused discontent to the deceased monarch's brother, who was governor of Sandoway, and he applied for aid to Ta-beng-shwe-htee. The Emperor invaded Arakan and having compelled the new king, Dham-ma-rit, to submit and to become his vassal and to re-appoint his uncle as governor of Sandoway he retired. The comparatively easy terms granted were due, to a great extent, to news from the south. The king of Siam had taken Tavoy and was harrassing the surrounding territory. Matters in Siam were in some confusion and Ta-beng-shwe-htee determined on invading that country. Bhoo-reng Noung was practically in command of the Talaing army, in which were some Portuguese under the at one time pirate Iago Soarez de Melo, and the forces crossed to Maulmain and entered Siam via Mya-wad-dee on the Thoung-yeng: thence they marched to the Mei-nam which they descended to Ayodhia, the capital, taking several towns during the advance. The attack on the capital failed, partly owing to the Portuguese portion of the garrison commanded by Iago Pereyra, but the Talaing army retreated in order, carrying away captive a son-in-law of the king of Siam. According to the Talaing accounts the king of Siam agreed to pay tribute and in consequence the Siamese prisoners were released. The news that had been received of an incipient rebellion at home no doubt hastened the withdrawal of the invading army. Ta-beng-shwe-htee had made a favorite of a nephew of Iago Soarez and after his return he, tempted by this nephew, gave way to habits of intoxication, partly induced, no doubt, by the hardships he had undergone and by the mental strain and worry. Bhoo-reng Noung banished young Soarez and took matters entirely into his own hands. At the end of 1540 the insurrection broke out. It was headed by Tha-mien-htaw, a reputed son of king Bya-gnya-ran by a concubine or an inferior wife, who had thrown off the yellow robe of a monk. The rebel leader took Dala and Syriam but was defeated on his advance on the capital and subsequently driven out of both of the strong places that he had seized and his followers dispersed. The country continued in a very disturbed state and in 1550 Tha-mien-tsaw-dwot, governor of Tsit-toung, who was in charge of Pegu, treacherously caused Ta-

beng-shwe-htee to be killed and immediately withdrew to Tsit-toung.

Ta-beng-shwe-htee was thirty six years old when he was killed and had reigned ten years in Toung-ngoo and ten in Pegu. During this period he had consolidated his power in Toung-ngoo, conquered and annexed Pegu, Prome and the whole valley of the Irrawaddy as far north as Pagan and invaded, and not altogether unsuccessfully, Arakan and Siam. But he was not merely a great soldier; he beautified his capital and constructed a road from Toung-ngoo to Pegu, which is still known as the Meng-lan, putting up rest-houses at intervals, and erected numerous pagodas of which the Bhoo-ra-gyee and the Bhoora-ga-le a little north of Pegu, both now in ruins, are, perhaps, the most noticeable. His name has not been lost to history for in a royal order, issued by the lately deceased king of Burma, degrading an A-tweng-won, his conduct as regards his intemperate habits and his intimacy with Soarez are alluded to "as illustrating the evil effects of drinking " intoxicating liquors and the danger of familiar association with " foreigners".

Rebellion now broke out every where; Thee-ha-thoo, Bhoo-reng Noung's younger half-brother, withdrew to Toung-ngoo; Tha-mien-tsaw-dwot returned to Pegu where he was formally consecrated and proclaimed king; the ruler of Prome declared his independence; and every district to the northward rose, each under it own ruler. Bhoo-reng Noung at once abandoned all action against Tha-mien-htaw and retired to Toung-ngoo where his brother refused to receive him and he, therefore, encamped outside the town collecting his forces and watching events. In the meanwhile Tha-mien-htaw had establishd himself at Martaban and very shortly afterwards Tha-mieng-tsaw-dwot was defeated by Tha-mien-htaw and beheaded.* After four month's siege Toung-ngoo surrendered and Bhoo-reng Noung was consecrated king, assuming the title of Tsheng-hpyoo-mya-sheng Meng-ta-ra-gyee. Crossing the Pegu Roma he captured Mye-dai and other cities further north and descended the Irrawaddy to Prome which surrendered, whereupon the whole country as far south as Donabyoo submitted.

After the defeat and retreat of Khoon-mhaing-ngay, the

* According to one part of the Portuguese chronicles "Gonsalo Neto, who with 80 " Portuguese followed Xemindoo (Tha-mien-htaw) killed Zatan (Tha-mien-dwot) " with a musquet shot, which opened the way for Xemindoo into the city * * * Gonsalo " Neto recived 10,000 crowns for that fortunate shot, and his companions 5000." On this Sir A. Phayre remarks, "the fortunate shot of Gonsalo Neto is told very circumstantially and " can scarcely be an inventiou. Perhaps the wound inflicted led to his capture."

Shan ruler of Ava, the government was in great confusion, different Shan Tsaw-bwa disputing the possession of the throne. Tsheng-hpyoo-mya-sheng considered this a good opportunity to conquer that kingdom and advanced as far as Ava but was recalled by the news of a threatened attack from Pegu. He returned to Toung-ngoo and marched thence to Pegu where he defeated Tha-mien-htaw and entered the capital. Tha-mien-htaw again became a monk and fled to Bassein whither he was pursued by the victorious monarch. Some time afterwards he escaped to Martaban but was taken prisoner and brought in to Tsheng-hpyoo-mya-sheng, and, refusing to make obeisance, was publicly beheaded. He was the last of the old Talaing dynasty.

Tsheng-hpyoo-mya-sheng had now made himself master of the whole of Pegu and of the country as far north as the northern limits of Toung-ngoo in the valley of the Tsit-toung and of the Pagan government in the valley of the Irrawaddy but he had no practical authority in Arakan or in Zeng-mai, whilst in Tavoy and Tenasserim the power and authority of his governors extended for but a short distance beyond their provincial capitals. The kingdom of Ava was weak and, intoxicated by a desire for conquest, he followed in the footsteps of his predecessor, Ta-beng-shwe-htee, and continued what Sir Arthur Phayre so justly stigmatizes as "a reckless career of "conquest" raising "the kingdom to a height of dazzling but false "prosperity which excited the astonishment of European travellers." And, as he adds, "in less than half a century the country was utterly "exhausted and the population so reduced by war, pestilence and "famine that to this day it has not recovered."*

He had appointed his brothers as viceroys of various provinces with extensive powers; Meng-rai-tsee-thoo of Martaban, Tha-do-dham-ma-ra-za of Prome, and Meng-khoung of Toung-ngoo; and had declared his son, a youth of tender age, Crown Prince. In July 1553 a force was despatched against Ava but it proceeded no further than Pagan whence it retreated, the ruler of that country, a Shan named Tsee-thoo-kyaw-hteng, having collected a strong force of his co-nationalists from the north. In 1554 the nephew and the son of the king of Arakan escaped to Pegu and were married, the former to a niece and the latter to a daughter of the Emperor. In the same year, when the rains were over and after making arrangements against any attack from Arakan, he again invaded Ava, the land column which moved up the valley of the Tsit-toung being under his own command and the flotilla under that of his brother, the governor of Prome. Ava was captured and its king, Tsee-thoo-kyaw-hteng, sent to Pegu and Tsheng-hpyoo-mya-

* History of Pegu, J. A. S. B., 1873 : Pt. VII : p. 123.

sheng's brother, Meng-rai-tsee-thoo of Martaban, was made governor with the title of Tha-do-meng-tsaw. The country to the north was overrun and subdued and as soon as the rains of the next year set in the conqueror, leaving a garrison in Ava, returned to Pegu.

He now took further steps to secure his power against any attack, fortifying his capital and endeavouring to ingratiate himself, as it were, with gods and men by beautifying pagodas, and, attempting to condone the sins he was inclined to by damning those he had no mind to, he, the butcherer of men, put a stop to animal sacrifices and forcibly converted numerous foreigners to his own—the one true—religion.

The Shan Tsaw-bwa in the north were in a continual ferment and he of Won-boung applied for assistance. Two armies were assembled: one was quartered at Toung-ngoo under the Emperor's brother and the other under the Emperor in person proceeded northwards to Tsam-pa-na-go. With this as his base of operations he overran Won-boung, Mo-miet, Mo-gnyeng, and Mogoung which he violently and completely subjugated and where he introduced the political Booddhist religious usance of respect for lower animal life if not of that of human beings, and in so far reformed the customs. He then marched across country south-eastwards and invaded Zeng-mai which submitted, its ruler swearing fealty. Leaving an army of fifty thousand men Tsheng-hpyoo-mya-sheng returned to Ava. He had now made himself master of Zeng-mai and of all the northern Shan states south of Bha-maw and west of the Salween, except Thien-nee but as he was not very sure of the fidelity of some of the Tsaw-bwa, notcably of Moon and Gnyoung-rwe, they and their families were kept at Ava. The Tsaw-bwa of Thien-nee was tributary to China and was not attacked but he came to Ava and made presents without, however, being in any way called upon to change his allegiance.

News having arrived that the ruler of Laos, south-east of Zeng-mai and now a portion of Siam, threatened an attack on the army of occupation left to guard the Emperor's conquests east of the Salween reinforcements were sent there under Meng-rai-kyaw-hteng who defeated and drove back the invader and annexed more territory towards the Me-kong.

In 1559 Tseng-hpyoo-mya-sheng returned to Pegu and for three years employed his time in "works of merit". He built monasteries, collected holy relics and, shocked at the conduct of the number of Mahomedans who now resided in his country and who thought nothing of killing goats and fowls, he collected those of the capital and neighbourhood and caused the Tha-tha-na-paing or chief monk of the empire to preach the law to them whereupon

numbers became Booddhists. The Talaing chronicles do not say to what extent violence was used nor how many men, women and children were tortured and put to death in order that goats and fowls might in future live in security.

The Siamese still hankered after Tenasserim and Tavoy and the governor of the former had entered into a treasonable correspondence with them. In 1562-63 an embassy was sent to demand one of the four white elephants possessed by the king of Siam who was reminded that one of his predecessors had sent such an animal to Wa-rie-yoo to whose rights Tsheng-hpyoo-mya-sheng had succeeded. This was in effect a call upon the ruler of Siam to acknowledge his vassalage but the elephant sent to Wa-rie-yoo was by no means sent as a mark of homage but as confirming that potentate in his rule in Martaban which the Siamese claimed as theirs. An evasive answer having been received a strong force was collected from every part of the empire and assembled at Toungngoo: the three northern columns were commanded by Tha-dodham-ma-ra-za of Prome, Tha-do-meng-tsaw of Ava and Mengkhoung of Toung-ngoo, and the southern by the Crown Prince. Crossing the Poung-loung mountains by various routes the Burmano-Talaing army entered Zeng-mai but instead of being well received by its ruler, who was a feudatory of Tsheng-hpyoo-mya-sheng, it had to besiege the various fortified towns. The operations were successfully conducted and a son-in-law of the king of Siam was taken prisoner. The army then descended the Me-kong, captured the Siamese capital and dethroned the king and placed his son Bra-maheng on thethrone as a tributary. The force was then withdrawn and Tsheng-hpyoo-mya-sheng with his prisoners, amongst whom were the wives and children of the dethroned king of Siam, reached Pegu in 1564. Shortly afterwards, in the same year, the offending ruler of Zeng-mai was attacked and made prisoner. In the meanwhile a rebellion broke out in Pegu amongst the Shan and Talaing. Tsheng-hpyoo-mya-sheng, leaving the Crown Prince in Zeng-mai, immediately returned and put down the rebellion with great cruelty. The Crown Prince had considerable difficulty in Zeng-mai but at last succeeded in capturing the various chiefs and the force was withdrawn in 1565. From this time till 1568 the Emperor was occupied in building new walls round the capital and in erecting various public buildings. In that year the tributary king of Siam, aided by the ruler of Laos who had escaped when the Zeng-mai chiefs were seized, rebelled and another expedition was undertaken and in 1569 Ayodhia, the capital of Siam, was taken by treachery and given up to plunder and a Zeng-mai chief was placed on the throne. The army then turned northward and attacked the chief

of Laos but the operations were unsuccessful and the troops were recalled in 1570. In 1571 a rebellion amongst the northern Shan was put down and another raid was made into Laos, and again another in 1574. In 1575 the northern Shan again rebelled but were defeated by the Emperor in person.

After he returned to Pegu he received from Ceylon what was said to be the holy tooth relic and a message from one of the kings saying that he was the only orthodox one of the four in the island and was reduced to great straits. In reply a small force was sent to his assistance.

Affairs in Zeng-mai were going badly and in 1578 Thar-ra-wad-dee-meng, one of the Emperor's sons, was appointed Viceroy, but in 1579 had to be assisted by a force under the Crown Prince who defeated the rebels and returned in 1580. In 1581 a grand expedition was organized against Arakan. The fleet was met by a Portuguese squadron and the Portuguese, considering themselves at war with Pegu, attacked it and took some of the ships but finding the enemy too strong sheared off and sailed back to Masulipatam. The Burmano-Talaing force was now entrenched at Sandoway but before any further advance was made the Emperor died suddenly, in November 1581, at the age of sixty-six, after a reign of thirty years.

The stories of the power of this ruler and of his predecessor and of the magnificence of his capital told by European travellers seem worthy of Mendez Pinto himself and yet they are related by men like Cæsar Frederick and Fitch who give sober enough accounts of other matters

Caspar de Cruz, a Dominican who was here in 1550—60 speaks of the "Brames" as being very rich in precious stones and metals as does Bomferrus, also a Dominican, who spent over three years in Pegu and returned in 1557. Cæsar Frederick came in 1569 and Fitch, an Englishman, in 1586 after Bhoo-reng Noung's death.

According to Frederick Pegu consisted of two towns distinguished as the old and the new. "In the old citie are the merchant "strangers and merchants of the country for there are the greatest "doings and the greatest trade. The citie is not very great, but it "hath very great suburbs. Their houses be made with canes and "covered with straw, but the merchants have all one house, or "magazon, which house they call godon which is made of bricks "and there they put all their goods of any kind to save them from "the often mischances which happen to houses made of such stuff. "In the new citie is the palace of the King and his abiding place with "all his barons and nobles and other gentlemen and, in the time "that I was there, they finished the building of the new citie. It "is a great citie very plain and flat and four square, walled round

"about and with ditches that compass the walls about with water, "in which ditches are many crocodiles. It hath no drawbridges "yet it hath twenty gates, five for every square; on the walls there "are many places made for centinels to watch, made of wood and "covered or gilt with gold. The streets thereof are the fairest "that I have seen, they are as strait as a line from one gate to the "other, and standing at one gate you may discover the other, and "they are as broad as that ten or twelve men may ride abreast in "them. All those streets that be thwart are fair and large; the "streets both on the one side and on the other are planted at the "doors of the houses with nut trees of India, which make a very "commodious shadow; the houses be made of wood and covered with "a kind of tiles in form of cups very necessary for their use. The "king's palace is in the middle of the citie, made in forme of a "walled castle, with ditches full of water round about it. The "lodgings within are made of wood, all over gilded, with fine pin-"nacles and very costlie work covered with plates of gold; trulie it "may be a king's house. Within the gate there is a fine large "court, from the one side to the other, wherein are made places "for the strongest and stoutest elephants." Of these elephants the Emperor had four white ones, fed off gold platters, and one enormous black one nine cubits or thirteen and a half feet in height. After describing the manner of catching wild elephants Frederick gives an account of the army, which consisted of elephants, the tusks of which were pointed with iron, and which carried four men, horsemen, arquebussiers and pikemen; the armour and weapons, except the arquebusses which were excellent, are described as bad, and the shape of the swords like long unpointed knives, just such as are now used, is noted. There was daily ball practice and the men were excellent shots. This daily ball practice could hardly have been continuous. The cannon were good and made of good metal.

Of the great power of the Emperor, Frederick writes enthusiastically. He had twenty-six tributary crowned kings—in reality viceroys—and could bring into the field a million and a half of men, and as they would eat anything they only wanted water and salt and could go anywhere. He had no power by sea but "for "people, dominions, gold and silver he far excels the power of the "great Turk in treasure and strength. This king hath divers "magazons full of treasure, as gold and silver, and everie daie "he increaseth more and more and it is never diminished. Also "he is Lord of the mines, of rubies, sapphirs and spinels. Neere "unto his royal palace there is an inestimable treasure whereof he "maketh no account, for that it standeth in such a place that "everie one may see it, and the place where this treasure is is a

"great courte walled all about with walls of stone, with two gates "which stand open everie daie. And within this place or courte "are foure gilded houses covered with lead and in everie one are "certaine heathenish idols of verie greate valure. In the first "house is the statue of the image of a man very greate and on his "head a crown of gold beset with most rare rubies and sapphirs "and round about him are foure little children of gold." In the second was a stature of silver sitting, as it were, on heaps of money "so big that sitting he is higher than the roof of any house" and its feet were as long as a man's body. In the third was a similar image of brass and in the fourth one of copper and lead. The king, when in the capital, sat daily for the administration of justice.

Cosmin* was the port where trade was carried on with S. Thome and with Bengal, whilst the trade with Malacca and other ports to the eastward was with Martaban. From Mecca (Mocha?) were imported into Syriam woollen cloths, scarlets, velvets and opium. The customs officers were strict: no duty was levied on rubies and sapphires but it was on all other precious stones. The trade was carried on by chartered brokers who got two per cent. on each transaction and were responsible for the payment and for the genuinenes of the goods sold. The principal exports were gold, silver, rubies, sapphires, spinels (all jewels were exceedingly cheap or as Frederick phrases it sold "at most vile and base prices") benjamin, long-pepper, lead, lac, rice, wine (?) and some sugar. The brokers were honest, being afraid of losing credit. There was no royal monopoly in the coinage and trade was really carried on by barter, the goods sold being exchanged for so much silver which was weighed and assayed on each occasion.†

Tsheng-hpyoo-mya-sheng left to his successor territories larger than any ever ruled before by any monarch in Burma. The Shan states in the north and Siam were tributary and Ava, Prome, Toung-ngoo, and Zeng-mai were integral portions of the empire, ruled by members of his own family. His time had been too much

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* The position of Cosmin is very doubtful. Colonel Yule in his "Mission to Ava", page 212, note, says—"I had always supposed from the narratives that Cosmin must "have been Bassein itself. But in Wood's map (1795) the last which gives the name, "Cosmin is placed on another channel to the eastward of the main Bassein river." Cæsar Frederick says that Cosmin is four days' journey from the mouth of the river, and in another place that it is a *six hours'* journey with the flood from Cosmin to Pegu. Gaspar Balbi landed at Cosmin and took eight days to reach Rangoon. As far as I am aware Cosmin is not mentioned by name in any Talaing or Burman history.

† The late king of Burma endeavoured to introduce a silver and a gold coinage, modelled on the rupee for the one and the sovereign for the other, but as there was no security for the quality of the metal and as it was not made legal tender the endeavour to a great extent failed. The weighing and assaying of silver still continues in most places in Upper Burma.

taken up with conquests and in quelling rebellions to enable him to consolidate the vast area under his sway and, indeed, the rulers of Indo-China of mixed Shan and Burman blood have little aptitude for rule and the heterogeneous collection of tribes and races which they have at different times subjugated have ever been ready to shake off their yoke, whilst the succession belongs generally to the strongest who, if he gets immediate possession, rids himself of all competitors, and if not has to secure it *vi et armis*.

After the funeral of the deceased Emperor, which was that of a Chakravartti Raja or universal monarch, his son proclaimed himself king assuming the title of Nanda Bhooreng, declared his own son, Meng-khyit-tswa, Upa-raza or Crown Prince, and at once recalled the army from Sandoway. Troubles soon commenced, the king of Ava, who was Nanda Bhooreng's uncle, neglected to pay homage, although even the king of Siam did so, and on receiving complaints from his daughter, who was married to Meng-khyit-tswa, that she was neglected, he addressed his brothers who were governing in Toung-ngoo and in Prome and the ruler of Zeng-mai and endeavoured to form a combination against the Emperor but those whom he sought to seduce from their allegiance revealed the plot. The Emperor suspecting that some of his nobles were intriguing against him had them and their families burned as traitors "an eminent and spacious scaffold" says Gaspar Balbi being erected for this purpose. Ten days later he marched against the king of Ava and aided by the kings of Toung-ngoo and Prome, he defeated him near Pan-ya after a personal encounter. The king escaped to China, where he died soon afterwards, and his family was carried captive to Pegu. Moung Tsek-ya, a son of the Emperor Ta-beng-shwe-htee, was made governor, and on his death a little later he was succeeded by Meng-rai-gyaw-tswa, a younger brother of Nanda Bhooreng.

In the meanwhile Bya-gnya-rit, king of Siam, had shewn himself decidedly hostile. In obedience to the summons which he received he marched his army into Pegu and was ordered by the Crown Prince, who was in charge of that country, to proceed northward and join the Emperor. Instead of doing this he threatened the capital but on hearing of Nanda Bhooreng's successes he withdrew into Siam carrying off many people from Martaban. A Peguan force was sent against him under the Crown Prince who was defeated and forced to retire. In 1587 the Emperor advanced in person, according to Ralph Fitch who was here at the time "with 300,000 men and 5,000 elephants" and invested Ayodhia, but he also was forced to retreat. In 1590 and in 1593 Siam was again invaded, but unsuccessfully and during the second invasion

the Crown Prince was killed. In the meanwhile the Tsaw-bwa of Mo-goung had rebelled but had been defeated by the united forces of the kings of Prome and Ava, the latter of whom was declared Crown Prince in succession to his brother who had been killed in Siam.

From this time commenced the decadence of the Peguan empire. "Pegu was now already exhausted : discontent was uni-"versal and the Emperor, suspicious of every one, became wanton-"ly cruel. The Booddhist monks of Talaing race excited his "hatred. Numbers of them he forced to become laymen, and then "either exiled or killed them. Thousands of the Mun people "(*Peguans*) abandoned their country and fled while those caught in "their flight were put to death for the attempt. The country of "the delta became depopulated and an attempt was made to drive "down the people from the Upper Erawati to till the fertile land of "Pegu. But famine and plague raged and there was no help."*

According to Faria y Souza "the King of Pegu in a rage "for the death of his son turned his fury against the people, and "some days burnt about ten thousand throwing so many into the "river as stopped the passage even of boats. He forbid them sow-"ing which caused such a famine that they not only eat one an-"other to which purpose there was a public butchery of man's "flesh, but devoured part of their own bodies."

The Jesuit missionary Boves who was in Pegu in 1600 writes:—"It is a lamentable spectacle to see the banks of the river, set "with infinite fruit-bearing trees, now overwhelmed with ruins of "gilded temples and noble edifices, the ways and fields full of "skulls and bones of wretched Peguans, killed or famished and "cast into the river in such numbers that the multitude of carcases "prohibiteth the way and passage of any ship, to omit the burnings "and massacres of this the cruelest tyrant that ever breathed." †

Taking advantage of these troubles the king of Siam invaded Pegu and at Martaban was joined by the whole Talaing population. Hearing of the invasion the king of Toung-ngoo marched down the valley of the Tsit-toung to defend the empire whereupon, according to the Talaing histories, the Siamese retired carrying many Peguans with them. Faria y Souza says that the king of Siam withdrew with the loss of 100,000 men and Niccolo Pimenta, a Portuguese priest who came to the country in 1597, that is a year or two later, says that "by the help of some Portugals and Turks‡ the "city|| escaped."

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* Phayre's History of Pegu, J. A. S. B. 1874. Part I., page 9.
† Boves in Purchas, ii. 1748 ; *Apud Yule.*
‡ Mahomedans.
|| Pegu.

During the absence of the ruler of Toung-ngoo the king of Prome attacked that government and as soon as the Siamese retired the king of Toung-ngoo returned northward to protect his capital. The king of Prome, who had not expected that the operations in the lower country would so soon be over, withdrew without attempting to meet the enemy in the field, but carrying off large numbers of cattle.

Siam was independent but Zeng-mai, Toung-ngoo, Prome and Ava were feudatory states. The first and fourth were ruled by the Emperor's brothers, the second by his nephew and the third by his son; of these Ava alone remained faithful.

The kings of Arakan had remained more or less subordinate to the rulers of Bengal until these had become weakened when the former occupied and held Chittagong and the country as far as the Megna. The king of Toung-ngoo invited Raza-gyee, king of Arakan, to aid him in overcoming Pegu and in 1596 an Arakanese force under Meng Kha-moung, the king's son, occupied Syriam. Two years later Pegu was invested. The Emperor's son, Meng-rai-kyaw-tswa, gave himself up and was sent to Toung-ngoo where he was put to death by order of the queen. Numbers of the nobles fled to Ava but others as well as the poorer classes, resting on the king of Toung-ngoo's promise of life, liberty and their estates to all, joined him. The Emperor finally surrendered and was put to death by the queen who had killed his son, and the city, in which the conqueror, to use the words of Faria y Souza, "found such treasure "that he made no account of silver and other metals and riches" was given up to plunder. The Arakanese did not take part in the occupation but a portion of the prizes, including a white elephant and one of the Emperor's daughters, was reserved for them. Faria y Souza says: "It is avouched for truth that he (*i.e.* the king of "Toung-ngoo) could not remove all the jewels and gold in twelve "caravans, each consisting of seven hundred elephants and horses. "The news of this treasure drew thither the king of Arakan who, "contenting himself with what he of Toung-ngoo undervalued, "gathered about three millions and a great train of large cannon."

The king of Siam again invaded Pegu and the king of Toung-ngoo retired to his own kingdom abandoning Pegu to be fought for by Arakan and Siam and carrying off many of the inhabitants and the holy tooth relic. The king of Siam invested Toung-ngoo but was forced by a scarcity of provisions to retreat. He made no attempt to annex Pegu itself but he retained Martaban and the country to the southward, appointing governors of his own.

A Portuguese ship's boy had taken service in the Arakan palace and had risen into favour and in 1600 he was sent to hold Syriam

for the king of Arakan, Meng Raza-gyee, who adopted for impression on his coinage the title of Salim Sha which the Portuguese historians have made into Ximilixa. The king, whilst reserving his own rights over such of the territory of Pegu as remained, allowed the Portuguese to live at Syriam under the former ship's boy, Philip de Brito y Nicote, and under their own laws, but he built a fort there and put one of his own officers, Bya-gnya Dala, in command of it. de Brito had no intention of remaining quiet; he seized the fort and, placing Salvador Ribeyro in command, left for Goa, the seat of the Portuguese Viceroy. He was well received, granted honorific titles, appointed governor of Syriam and married to the Viceroy's niece, whose mother was a Javanese, Donna Luisa de Saldanha, and then returned to Pegu with six ships. All had not gone on quietly during his absence. The Arakanese, aided by some Prome troops, had attacked the fort but were driven off, re-inforcements having been sent by the Viceroy from Goa. On the withdrawal of these the Arakanese again invested the position but eventually withdrew and many Talaing then joined Ribeyro. de Brito at once took possession of the country in the name of his master and the Arakanese monarch, hiding his real intentions, sent to congratulate him but as soon as he had effected an alliance with the king of Toung-ngoo the armies of the two monarchs attacked the Portuguese; they were defeated by a small force under Paulo de Rego Pinnero and Meng Kha-moung, the son of the king of Arakan, was taken prisoner. He was well treated but notwithstanding orders from Goa de Brito demanded a ransom of fifty thousand crowns. Hostilities again broke out and at first the Portuguese were worsted and their fleet destroyed but for some unknown reason the king of Toung-ngoo suddenly broke up his camp and the king of Arakan thereupon withdrew his forces. de Brito now entered into an alliance with the king of Toung-gnoo and married his son to the daughter of the Siamese governor of Martaban.

After the fall of the Peguan empire, the ruler of Ava, Gnyoung-ran-bhoora, the brother of Nanda Bhooreng, had been left in peace as the various other rulers were too much occupied in fighting in the south. He reduced the country into order but was soon threatened by an invasion, the rulers of Prome and Toung-ngoo combining against him. In 1597 the Prome army advanced but in October of that year the king and as many of his family as could be seized were put to death by one of his officers who declared himself ruler of Prome. Some of the family escaped and fled to Arakan and one son, Meng-rai-oo-za-na, to Ava. The Prome army retired and the king of Toung-ngoo recalled the troops which he had put in motion.

Gnyoung-ran-bhoora assumed the title of Noo-ha-thoo-ra Maha-dham-ma-ra-za and in 1599 ineffectually attacked the Tsaw-bwa of Mo-hgnyeng and of Mo-goung: in 1600 he recovered Re-me-theng, which had been annexed to the Toung-ngoo dominions, and in 1601 conquered Gnyoung-rwe. He then marched against Bha-maw and as the Tsaw-bwa escaped into China followed him to the borders of Maing-tee and then sent the Crown Prince to demand the person of the fugitive. The Tsaw-bwa, whom the Chinese were about to surrender, failed in an attempt to escape, and either poisoned himself or was put to death. His body and his family were then given up. The Shan states in the north and east, Mo-goung Mo-miet, Thee-baw and Thien-nee were subdued. During the last expedition Noo-ha-thoo-ra Maha-dham-ma-ra-za died and was succeeded by his son who took the title of Maha-dham-ma-ra-za.

In 1607 Maha-dham-ma-ra-za took Prome after a siege of eight months and made his brother, Meng-re-theng-ga-thoo governor. The king of Arakan, who had agreed to aid the governor of Prome but had failed, and the kings of Toung-ngoo and of Zeng-mai sent him presents but in 1610 he attacked Toung-ngoo and made its king tributary. He then returned to Ava carrying with him the tooth relic which originally came from Ceylon and which the ruler of Toung-ngoo had carried away from Pegu.

In the meanwhile de Brito, who was ruling in the name of the king of Portugal, was acting with a high hand or as an old writer expresses it "he yet also domineereth and careth for nobodie." He sent a fleet to Arakan to demand the cession of a fort but the king of that country treacherously put the whole of the expedition to death. He entered into secret correspondence with the governor of Martaban and with the king of Toung-ngoo but on learning that the latter had become the vassal of the king of Ava he, with the governor of Martaban, attacked him and took and plundered Toung-ngoo. This brought on a war with the king of Ava. The Burmese army descended the Irrawaddy and invested Syriam and an Arakanese fleet which was sent to the assistance of the Portuguese was captured. de Brito had few men and but little ammunition and the place was taken after a siege of thirty-four days; de Brito and two others were impaled and the rest of the prisoners were sent as captives to Ava where some traces of them exist to this day in a race of people with light-coloured hair and eyes. Maha-dham-ma-ra-za then annexed Martaban and forced Bya-gnya Dala to put de Brito's son to death. An army which he had sent southwards under his son was successful at Tavoy, which was taken, but failed at Tenasserim where the Burmans were defeated by a small force of Portuguese under Christoforo Rebello. Maha-dham-ma-ra-za was now solemnly

declared Emperor at Pegu and returned to Ava. The great monarchy was thus re-established but with the capital at Ava instead of at Pegu.

The Siamese now entered into an alliance with the Portuguese and this so disturbed the Emperor that he also sent a mission to Goa and suggested a joint attack on Arakan. The Viceroy was quite willing and sent a return embassy but nothing came of it. The Emperor gradually extended his conquests and succeeded in taking Tenasserim and in annexing Zeng-mai and this brought him into contact with the English for amongst other persons taken prisoner to Ava was one Samuel who died shortly afterwards when all his property was seized; two envoys were sent from India to claim it and in 1619 it was sent back with them and with a letter inviting trade, and English factories were then established at Syriam, Prome, Ava and Bha-maw. A little later, owing to the conduct of the Dutch, who also had a factory at Bha-maw, both nations were ordered to withdraw.

In about 1658 one Young-hlee, who had rebelled against the Emperor of China and declared himself independent, was driven to seek refuge in Ava; he was followed by the Chinese who defeated two Burmese armies and laid siege to Ava but being repulsed retired. The fortifications were repaired and the rulers of Toungngoo and Prome called upon for assistance as the Chinese again invested the capital. There was considerable discontent amongst the Burmese troops and, taking advantage of this, the ruler of Prome in 1661 dethroned his brother of Ava and caused him and his family to be drowned in the river Khyeng-dweng, and declared himself Emperor taking the title of Meng-gyee-gyo-goung. He succeeded in driving off the Chinese but they shortly afterwards returned and demanded the surrender of Young-hlee, and on his being given up they finally withdrew.

Whilst these events were taking place in Burma and Pegu Arakan was by no means quiet. Shortly before the treacherous massacre of the envoys of de Brito a man named Sebastian Gonzales visited Arakan and he succeeded in escaping when that massacre took place. He and those who got away with him went to the Soonderbuns where for some time they lived by piracy. They were attacked by the Moghul commander of Sundeep but he and the greater part of his troops were killed and the whole of his fleet captured. Recruits joined the pirates from all quarters and Gonzales was made chief. They established themselves on Sundeep and in the neighbourhood and made an unsuccesful attempt to invade Arakan. The whole of the country to the eastward was now so disorganized and Bengal seemed so distracted that the king of Arakan thought it a good opportunity and entered into an alliance

with Gonzales for an attack on the latter country. The advance was at first successful and the country in the neighbourhood of Luckimpur was occupied but reinforcements having arrived the Arakanese were defeated and pursued nearly as far as Chittagong. An Arakanese fleet had been sent round to the mouth of the Ganges and placed under Gonzales' orders: when the army retreated he treacherously murdered the commander and took possession of the vessels and at once commenced making arrangements for invading Arakan. He ravaged the coast and ascending the Koo-la-dan seized all the ships he found and attacked the town but was defeated. His nephew whom, as agreed upon, he had given as a hostage when the Arakanese made the treaty with him under which the invasion of Bengal took place, was impaled in sight of the whole fleet. Gonzales now sent an envoy to the Viceroy at Goa, Don Hieronimo de Azvedo urging him to annex Arakan which he described as both rich and weak. An expedition was fitted out and placed under the command of Don Francis de Meneses who had been for several years governor of Ceylon. On the 3rd October 1615 it anchored within the bar at the mouth of the Koo-la-dan and a messenger was sent to Gonzales at Sundeep. Before any reply was received the fleet of the king of Arakan, aided by some Dutch vessels which happened to be in port, attacked Don Francis but were beaten off. Shortly afterwards Gonzales arrived and on the 15th November the combined squadrons got under weigh and proceeded up the river in two divisions, one commanded by Don Francis and the other by Gonzales. Before arriving at the capital they came accross the Dutch and Arakanese, an action ensued in which Don Francis was killed and Gonzales then withdrew to the mouth of the river and after a council of war abandoned the enterprize. He returned to the Soonderbuns but was deserted by his followers and in 1616 the Arakanese invaded Sundeep, defeated Gonzales and took possession of other islands at the mouth of the Ganges.

When, in 1660, Sha Shuja was defeated by Mir Jumla, Aurungzeb's general, he fled to Arakan and was received at the Naaf by an Arakanese officer who assured him of protection. At some distance from Arakan he and his party were met by an escort and conducted to the houses prepared for them. For sometime the refugees were well treated but the king's conduct suddenly changed and he sent a message demanding one of the unfortunate exile's daughters in marriage adding that if he refused he must quit Arakan. Sha Shuja haughtily refused to give his daughter to an idolater and said that as soon as the monsoon changed and a ship could be got he would go. He was ordered to go at once but before he could

comply was attacked: he himself was drowned and the ladies of his household were seized and carried to the capital. The daughter whose beauty had excited the lust of the Arakanese monarch stabbed herself in his presence, two others poisoned themselves and the youngest was forcibly married to the king but soon died: his two sons were subsequently drowned. When the news of the destruction of the whole family was brought to the aged Sha Jehan he exclaimed "could not the cursed infidel have left one son of Shuja "alive to revenge the wrongs of his grandfather?"

Two years later in 1663-64 the Arakanese, aided by Portuguese adventurers, invaded Bengal and ravaged the country almost as far as Dacca but in 1666 they were finally expelled from Sundeep and the other islands of which they had taken possession by Hossein Beg the general of Shaista Khan the new governor of Bengal.

As neither the Burmans nor the Talaing had ever been able to retain their conquests for long so now the Burman Empire gradually fell to pieces. Emperor succeeded emperor in Ava but each was weaker than his predecessor; rebellions broke out amongst the Shan and the Talaing and were with difficulty suppressed; the rulers of Toung-ngoo, Prome, Pegu and Tavoy became more and more independent and, exercising vast power, used it for their own ends, whilst the last and the governor of Tenasserim were continually intriguing with Siam which in 1686 had regained possession of the country in the south. At last in 1740, when the fourth successor of Meng-gyee-gyo-goung was on the throne, the Talaing rose in rebellion and aided by the Siamese seized Syriam and other towns in the lower country; the Burmans recaptured Syriam but held it for three days only when they were driven out by the Talaing, and eventually the Burman troops were forced northwards, Ava was taken and the reigning monarch Khoung-thit was made prisoner and carried away to Pegu. It seemed as if there was about to be another turn in the wheel and that the Peguan empire was to be re-established. A strong garrison was placed in Ava and detachments in other towns and the Talaing ruler returned to Pegu to consolidate his empire, as he fondly thought.

After the English and Dutch had been forced to abandon their factories trade was carried on for some years with the ports in the south but no agencies were established anywhere. The Burman sovereigns and their officials, and indeed the whole of the inhabitants of Chin-India, had the most supreme contempt for non-Booddhistic foreigners, and our ignorance of their laws and traditions and the resulting mistakes that we made, especially as individuals, by no means tended to produce greater friendliness, whilst it was impossible that the Burmans, Talaing and Arakanese

should forget the conduct of Gonzales or de Brito or should draw distinctions between Portuguese adventurers and British and French officers: subsequent events only proved how right they were. The officers of the East India Company were very anxious to extend the scene of their operations and whilst carrying on an almost deadly struggle with other European nations in India and gradually spreading over Hindustan they did not forget Chin-India. In obedience to instructions from England endeavours were made, but unsuccessfully, in 1680 and again in 1684 to re-establish factories in the delta of the Irrawaddy and in Burma. In 1686, when Burma was much disturbed and Arakan by no means quiet the rulers of both entered into correspondence with the governor of Madras. In 1687 Captain Weldon, who had been sent to Mergui to declare war against Siam, took possession of Negrais island in the Bassein river and "destroyed some Siamese huts." The huts must have belonged to Shan, who by old writers are often called Siamese, and he may have supposed that Negrais or Haing-gyee was Siamese territory; if so his imagination must have been fertile and the more especially as in 1686 the governor of Madras considered the island as a portion of the Arakan dominions. Nine years later the governor of Syriam invited the English to re-establish a factory there but a projected expedition against Chittagong and possibly a knowledge of the generally disturbed state of the country led the governor of Madras to decline the invitation or at least not to act upon it.

Shortly afterwards an Englishman named Adrian Tilbury died intestate at Martaban and the Burmese governor, acting on the ordinary and well-understood Burman custom of those days, escheated the property. Subsequently a ship belonging to Bartholomeo Rodrigues and sailing under British colours (the *S. Anthony and S. Nicholas*) having put into a Burmese port for wood and water was confiscated and the commander and crew detained. In 1695 the governor of Madras deputed Messrs. Fleetwood and Sealey to Ava to endeavour to recover the goods of Tilbury and the ship; to obtain the release of the officers and men and to gain certain commercial advantages, especially leave to re-establish the factory at Syriam. The Emperor ordered the release of the captives and granted a site at Syriam but refused to restore the property. No advantage was taken of the permission given and in 1697 Mr. Bowyear was sent on another mission with much the same object but the Emperor, Meng-rai-kyaw-teng, died just after Mr. Bowyear arrived in the country and nothing was obtained. In 1709 the governor of Madras, Mr. Pitt, despatched Mr. Alison to Ava and the result appears to have been a greater freedom for

trade, but the accounts of his mission, if they exist, are locked up in the archives of Madras.

In 1740 the temporarily successful revolt of the Talaing broke out. The British and all other foreigners remained unmolested and indeed the English were applied to for aid by the Talaing and offered great advantages but the Factor, Mr. Smart, evaded the request. The Burman officers treated the foreign element equally well but the Talaing, when they regained possession of Syriam, as already related, thinking and not altogether unjustly, that the English had not behaved with frankness and complete honesty of purpose, in the words of Dr. Bayfield, who if he shews any partiality shews it to the English, "burnt the Company's factory "to the ground, which, together with the unsettled state of affairs, "occasioned Mr. Smart to retire from the country, and thereby, "through the misconduct of its agent, the Company forfeited its "advantages, present and prospective."

In 1752 the ruler of Tavoy, who had declared himself independent, invited the English to establish a factory in his dominions; but the terms on which he offered to grant a site and trading facilities were so exorbitant that they could not be accepted. In 1753 the governor of Madras established a settlement on Negrais or Haing-gyee. The site was badly chosen and the establishment suffered much from sickness; added to this the Burmans rose against the Talaing and the whole country was soon the scene of a fierce war.

CHAPTER IX.

HISTORY.

FROM THE RISE OF ALOUNG-BHOORA (1754) TO THE DEATH OF BHODAW-BHOORA (1819).

The Peguan king was not destined to retain his conquests long. The Myo-thoogyee, or head-man, of Moot-tsho-bho, a town about fifteen miles inland from the right bank of the Irrawaddy and fifty miles north of Ava, was one Oung-za-ya, a connection of the Burman royal family; he had been confirmed in his place by the conqueror but had no intention of remaining faithful. By the beginning of 1754 he had succeeded in collecting round him a hundred devoted followers and taking advantage of some act of insolence on the part of one of the fifty Peguans garrisoning his town he put them all to the sword. He then wrote to the Talaing governor of Ava expressing regret at what had occurred and attributing it to a sudden access of fury on the part of the Burman inhabitants whom he had been unable to restrain. So little was the magnitude of the danger apprehended that a small force only was sent against him and the governor himself went down to Rangoon, leaving his nephew in charge with instructions to put Oung-za-ya in confinement as soon as he was brought to Ava. But Oung-za-ya, who had repaired the stockade of Moot-tsho-bho, attacked and routed the Peguan corps and pursued it for two miles. He now pointed out to his followers and townsmen that they were thoroughly committed and must go on and, knowing the credulous character of his countrymen, he artfully put abroad a supposititious prophecy and was very speedily joined by numbers of Burmans. His forces thus recruited he moved on to Ava before the Peguans could recall their numerous detachments spread over the country. The acting governor fled to Dagon (Rangoon) and the Burmans in the capital rose and massacred the small Talaing garrison. Oung-za-ya, on receiving information of what had occurred, sent his second son, Moung Louk (who afterwards ascended the throne under the title of Mye-htoo-meng which he almost immediately changed to Tsheng-hpyoo-sheng [Lord of the white elephant]) to Ava and remained himself in Moot-tsho-bho collecting and disciplining his forces. The Peguan monarch could not submit tamely to this outrage and a large army was assembled

at Than-lyeng (Syriam) which, in January 1754, moved up the Irrawaddy to retrieve the disasters of the Talaing arms in Upper Burma. The progress was slow and Oung-za-ya thus gained what of all things he most wanted—time. The Peguans reached Ava without opposition and a summons was sent to Moung Louk to surrender the city, which he haughtily refused to do. Oung-za-ya had collected a force of ten thousand men and a large and formidable fleet of boats at Kyouk-myoung, some distance up the river, and the Peguan commander determined on masking Ava and attacking the Burmese army. The action was bloody and for sometime doubtful till a report being spread that the Burmese had issued from the capital and were about to fall upon their rear the Talaing troops broke and fled and were pursued as far as Tsheng-hpyoo-kywon by Oung-za-ya, now really joined by the garrison of Ava. Enraged at the defeat of his forces, the king of Pegu put to death all his Burman prisoners without respecting age or sex and did not even spare the old king of Burma; this infuriated the Burmese, who were still numerous in Prome, Donabyoo, and other towns in lower Burma, and they rose on the Peguan garrisons and put them to the sword: everything was thus succeeding admirably for Oung-za-ya. The son of the murdered king joined him with several thousand men, but foolishly assumed the insignia of royalty; this, by no means suited the Myo-thoogyee of Moot-tsho-bho, who intended to proclaim himself sovereign, and the rightful heir, feeling his position insecure, escaped and took refuge with the Shan. Towards the end of 1754 the king of Pegu collected another army and proceeded up the Irrawaddy in person; the Burmans in Donabyoo and the towns in the southern portion of the valley abandoned them and collected in Prome which the Peguan king proceeded to invest, placing a strong detachment at Melloon in the north to intercept all supplies for the town. Oung-za-ya sent down a force which drove in the Talaing from Melloon but the general commanding it, finding that he was not strong enough to attack the Peguans with any chance of success, by a bold movement succeeded in throwing his troops into the town of Prome with a large supply of provisions and ammunition. On this Oung-za-ya himself, leaving his two sons at Ava and Moot-tshoo-bho respectively, dropped rapidly down the river and completely defeated the king of Pegu. He lost no time but proceeded southwards to Bassein where his advanced guard arrived on the 23rd February 1755, the place having been abandoned by the Talaing five days before. Captain Baker was in charge of the English factory and he received the Burman troops with confidence, and asked for protection and his request was granted; they fired the town, but

did no damage to the factory. For some weeks there were continual skirmishes between parties of the two nations and the former Peguan Tsit-ke made an ineffectual attempt to repossess and defend Bassein. From Loonzay, where Oung-za-ya had remained and which he had renamed, a deputation was sent to the chief of the English factory on Negrais island with a view of gaining assistance against the Peguans; on its arrival in Bassein Captain Baker sent down Oung-za-ya's letter to Mr. Brooke who replied by directing Captain Baker to accompany the deputies to Negrais where they arrived on the 22nd March; in the meanwhile the Peguans managed to repossess themselves of Bassein and the deputies, being consequently, unable to return, remained with Mr. Brooke. About the middle of April Oung-za-ya attacked and completely defeated the main Peguan army a short distance above Dagon, on which the detachment in Bassein evacuated that town and the Burmese immediately re-occupied it. The line of communication being thus opened Oung-za-ya's envoys were enabled to leave the English factory at Negrais and rejoin their master, which they did at Dagon whither he had proceeded with the main portion of his forces, carrying with them from Mr. Brooke assurances of the friendship and assistance of the English.

Oung-za-ya now no longer hesitated but declared himself king of Burma and Pegu, the successor of the unfortunate monarch who had been taken prisoner by the Peguans. According to the ancient custom of the Burman sovereigns he assumed a new name, choosing that of Aloung-bhoora (corrupted by Europeans into Alompra), a term applied to any one destined to become a Booddha; in short he bestowed upon himself a species of apotheosis. At the same time he conferred royal titles upon his two sons, the eldest being created Tsit-kaing-meng and the second, Moung Louk, Mye-htoo-meng.

The chiefs of the English and French factories at Than-lyeng (Syriam) had hitherto kept aloof from the strife as much as possible but, urged perhaps by their natural rivalry, they had secretly favoured different sides, the French attaching themselves to the Peguans, the English to the Burmans. Affairs had, however, now reached a point where it became necessary for the two heads to express their sympathy openly. The English at Negrais and Bassein had furnished Aloung-bhoora with munitions of war and Mr. Brooke had assured him of his friendship and assistance and the chief of the English factory at Than-lyeng, though that place was in the possession of the Peguans, followed Mr. Brooke's example and declared for the Burmans. M. Bourno the chief of the French factory was too clear-sighted not to recognize that the Burmans had by far the best chance of success. He determined, therefore,

to temporize, and putting his whole establishment on board three French ships he separated from the Peguans and dropping down the Pegu river anchored in what is now called the Rangoon river, whence he proceeded in a boat with two attendants to visit Aloung-bhoora in Dagon; he was well received but two days after his arrival the officer whom he had left in command of the ships, without even communicating with him, took advantage of a flood tide, and returned and anchored off Than-lyeng (Syriam). Aloung-bhoora at once accused the French of treachery but finally allowed M. Bourno to return to his ships and bring them back on condition that he left as hostage one Lavine or Laveene. This young Frenchman who, probably owing to his having been removed elsewhere or to his having ingratiated himself with Aloung-bhoora, was spared when, a few months later, the rest of his countrymen were put to death, was the leading spirit in the massacre of the British officers in Negrais in October 1759.

Aloung-bhoora having driven the Peguans from their posts above Dagon and cooped them up in Than-lyeng (Syriam) and Pegu felt himself secure: with a thorough knowledge of human nature as exhibited in the Indo-Chinese races and as far seeing as he was mighty in war he determined on founding a town at Dagon which should be the capital of the province and on so adding to and adorning the great Shwe Dagon pagoda that it should eclipse the Shwe-hmaw-daw in the old town of Pegu, the great object of veneration of the Talaing, a policy as carefully carried out by his successors as it was initiated by this the greatest of Burman conquerors. He laid out a new town on the bank of the river which he called Ran-goon which he made the provincial capital. Knowing his countrymen thoroughly he adopted the name as a means of marking his victories, naming his new town 'war ended' which would be understood by all as meaning "Talaing for ever conquered".

Whilst Aloung-bhoora was thus engaged against the Talaing in the south the northern Shan from Mo-goung invaded the country in support of the son of the last king of Burma, who had fled to them for protection when he found his position insecure in the Burman camp. The usurper at once left Rangoon and proceeded north and not only drove back the invaders but pursued them into their own territory and, dethroning their Tsaw-bwa Chow-khoo-tseng, annexed the Shan tsaw-bwaship to Burma; from that time the principality of Mo-goung, has ceased to be even nominally independent and has been ruled by delegates from Ava.

During Aloung-bhoora's absence from Rangoon events occurred which seriously interrupted the amicable feeling between the Burmese and the English which Mr. Brooke had striven to foster.

Taking advantage of the absence of the master mind the Peguans attacked Rangoon and during the action which ensued not a shot was fired from the English ships. The Peguans opened a correspondence with the English who agreed to assist them and having thus both French and English on their side they made arrangements for another attack on the Burmese position. The Burman general who had been left in command by Aloung-bhoora on discovering the intentions of the Talaing sent for the chief of the English factory to concert measures for the defence of the town and openly expressed to him his annoyance at the British ships having afforded him no assistance during the last assault, to which the reply was that without special orders from his superiors in Madras the English could not commence hostilities with either party. A few days afterwards the Peguan fleet advanced, accompanied by two French ships, and commenced firing on the Burmese who at once sent to the English for assistance ; the only reply was that the Company's ships Hunter, Arcot, and Elizabeth, opened fire upon those who sought their aid. During the night the English ships removed out of reach of small arms and next day the Peguans, accompanied by the French and English ships, returned to Than-lyeng (Syriam) leaving the Burmans in possession of their original position. The Peguan heir-apparent, who was commanding the Talaing forces, made every endeavour to secure the friendship of the English civil officers and wrote to Mr. Brooke at Negrais who replied cautiously and would by no means commit himself. The conduct of the English appears to have been due to the effect of the representations of the Talaing commander on Captain Jackson of the Arcot, who grounded his conduct on the behaviour of the Burmese, complaining of personal ill-treatment and making other charges which his despatches do not support. Soon after the attack the Hunter and Elizabeth left the river, the Arcot remaining behind for repairs.

In the meanwhile Mr. Brooke, who was at that time chief of all the English factories in Pegu, was carrying on negotiations with Aloung-bhoora and despatched Captain Baker and Lieutenant North with presents and with instructions to conclude a treaty of amity and alliance with the Burman monarch. Lieutant North died of dysentery and fever on the way up ; Captain Baker arrived at Ava on the 8th September 1755 where he was well received by the governor. Aloung-bhoora had transferred the capital from Ava to Moot-tsho-bho and thither Captain Baker proceeded. On the whole he was well received but the Burman sovereign taunted him with the conduct of the English at Rangoon, alleging that he had always treated them with kindness, and the British envoy could only reply by expressions of regret and by assurances that Mr. Brooke

was totally ignorant of the proceedings until too late and then highly disapproved of them. The instructions which Mr. Brooke had given to Captain Baker were not only to obtain a treaty of friendship and alliance but also certain commercial advantages, especially legal grants of Negrais island and ground for factories at Than-lyeng (Syriam) and Bassein. The king scouted the idea of a treaty of alliance and laughed at its being thought possible that he could require, in the words of Mr. Brooke's letter, "the friendship and assistance of so great a power as the Honourable "Company"; indeed the British officers in Burma had hitherto done nothing to shew that they were the servants of a power which could crush any eastern potentate but had succeeded in shewing that they themselves were not above deceit and treachery. All that Captain Baker could obtain was a grant of land in Bassein and in Rangoon, instead of at Than-lyeng (Syriam) which Aloung-bhoora had resolved utterly to destroy.

Mr. Brooke was determined that his plans should not be interfered with and his arrangements for assisting the Burmese thwarted by the conduct of his subordinates at Than-lyeng (Syriam) and he issued orders for all British ships in Than-lyeng (Syriam) waters to proceed forthwith to Negrais. On this the Peguan chief interfered and seized the ships, placing Talaing troops on board, and, aided by the French, and by the English thus acting under compulsion, made a last and ineffectual assault on Rangoon. One of the English ships was the Arcot commanded by Captain Jackson and it can hardly be doubted, considering his previous conduct, that the assistance afforded to the Talaing was not altogether compulsory.

This was the last assault on Rangoon by the Talaing: Aloung-bhoora returned from the north and at once changed the plan of operations; instead of waiting to be attacked he proceeded to invest the Talaing position at Than-lyeng (Syriam) whence the British ships had been allowed to depart. The French remained and M. Bourno prepared to defend his position; his solitary ship was soon disabled and he then made overtures of peace to the Burman sovereign; the Peguans discovered this and seizing the whole of the French party they removed them into the fort, on which Aloung-bhoora took possession of the ship and the factory. Here he remained till July 1756, when, taking advantage of a favourable opportunity, he assaulted and took the fort, most of the enemy escaping to Pegu; the French were all taken prisoners.

M. Bourno had not been idle; he had communicated with Dupleix then governor of Pondicherry and had induced that great and far-seeing statesman to send help to the Peguans but unfortunately it arrived too late: the Galatée well manned and armed and with

a large supply of stores arrived off the mouth of the Rangoon river two days after the fall of Than-lyeng (Syriam). Aloung-bhoora forced M. Bourno, who was in close confinement, to write to the commander urging him to come up and on his arrival his ship was seized and himself and his crew sent to share the captivity of the captives from Than-lyeng (Syriam). The ship's papers proved that the supplies were intended for the Peguans and Aloung-bhoora ordered the immediate massacre of every French prisoner; a few seamen and lascars alone were spared to afford assistance in the further prosecution of the war, but were condemned to all the miseries of hopeless bondage: from these captives some of the Christian inhabitants of the Dibayen district in Upper Burma are said to be descended.

Having thus made himself master of the delta of the Irrawaddy the Burman sovereign advanced on Pegu where the Talaing made a last stand. He arrived in January 1757 and for two months he closely invested the town and reduced it to such a state of famine that the Peguan king called a council and proposed to sue for peace and to send his daughter to his enemy. One man alone, his best general, Dalaban, opposed the plan, but his advice being rejected he with a few followers cut his way through the Burman army and escaped to Martaban. Negotiations were entered into with Aloung-bhoora which terminated in an agreement that the Peguan king should govern his country on doing homage to the Burman sovereign and that Prome should continue to be the northern frontier of Pegu; the daughter of the Talaing monarch was sent to Aloung-bhoora's camp and was received with music and rejoicing. Aloung-bhoora had not the slightest intention of abiding by his agreement; taking advantage of the truce he secretly introduced parties of armed men into the town, but this was discovered, the gates were closed, the Burmans who had got inside were massacred and for six weeks more the town was closely invested. Famine produced its necessary result, the Peguan king again made overtures of peace, stipulating only for his life; this was granted and Pegu was surrendered and its sovereign sent a prisoner to Moot-tshoo-bho. Having thus made himself master of the capital, dispersed the last Talaing army and made the Peguan king a prisoner, Aloung-bhoora proceeded to bring into subjection the countries to the eastward as far as the "Three Pagodas" the ancient boundary between Pegu and Siam. At Martaban only did he experience any difficulty but Dalaban, finding that he could not resist the conqueror, fled to the jungles and was only induced to give himself up when Aloung-bhoora threatened to put to death every one of his relations, all of whom he had seized. Dalaban

surrendered and his conduct before the sovereign was so firm and resolute that Aloung-bhoora forgave him and raised him to a high post of honour, the duties of which he scrupulously fulfilled as long as Aloung-bhoora lived. Proceeding south the Burman monarch wrested Tavoy and Mergui from the Siamese and leaving there Burmese garrisons he returned to Moot-tsho-bho.

In the early part of 1757 Aloung-bhoora wrote to the chief of the factory at Negrais asking for a personal interview near Prome, and on the same occasion he sent a letter from himself to the king of England, written on virgin gold studded with rubies, which was never delivered and about which nothing more is known than that it was delivered to a Mr. John Dyer and some other persons who visited the king in Rangoon. Lieutenant Newton, who was then in charge of the factory at Negrais, deputed Ensign Lister to meet the conqueror and the embassy left Negrais on the 26th June 1757, but was detained at Bassein till the 13th July waiting for one Antony who had been deputed by the Burmese government to escort it. The boats provided were but ill equipped and Mr. Lister experienced much insolence: he overtook Aloung-bhoora on the Irrawaddy and was received on board the royal boat and after some time the king agreed to a treaty the terms of which were:—

1st.—Cession to the British of the island of Negrais in perpetuity.

2nd.—Cession of ground at Bassein to the extent of four thousand square cubits and more, if required, in perpetuity.

3rd.—Trade to be duty free.

4th.—The Company to give one 12-pounder gun and 730 lbs. powder.*

5th.—The Company to aid and defend the king of Burma against all his enemies, his majesty paying the expenses of the troops.

6th.—The Company not to assist the king of Tavoy.

Ensign Lister soon found, however, that nothing was to be done without a bribe and before he could obtain the treaty, of the conditions of which rumour said that Aloung-bhoora was ignorant and one of the terms only of which was ever carried out, he had to give a bill on the Company for Rs. 3,500. Before leaving Aloung-bhoora the English envoy had an audience and received the royal return presents, consisting of 24 heads of Indian corn, 18 oranges and 5 cucumbers! He was then allowed to depart, but as his majesty required his boat he was furnished with another in such

* Symes says that the Company agreed to pay an annual tribute of ordnance and military stores. The terms of the treaty as given in the text are taken from Dr. Bayfield's account.

bad condition that it sank during the night. On the 22nd August 1757 Ensign Lister measured the allotted piece of ground at Bassein and the British colours were hoisted and three volleys of small arms fired.

Whilst Aloung-bhoora was engaged in overthrowing the Peguan power he found it necessary to detach a force to attack Manipur. In 1714 Gurib Nawaz ascended the throne of that State, and after repeatedly attacking and defeating the Burmese forces he, in 1738, carried his victorious arms as far as the then capital of Burma, Tsit-kaing, which he occupied. In 1749 he was dethroned by his son and fled into Burmese territory for protection. Taking advantage of the disturbances in Burma the Manipuris, in 1754-55, recommenced their aggressions, and in the latter year Aloung-bhoora despatched a force under one of his near relations which overran the country, owing its success mainly to the use of fire-arms. After his return from Pegu Aloung-bhoora himself advanced up the valley of the Khyeng-dweng, in 1758, and crossing the Ungoching hills by the Khambat route, he entered the Manipur valley by the Imole pass and, after a sanguinary battle with the inhabitants under Burut Shah, he occupied the capital where he remained for thirteen days. He was recalled thence by news of a rebellion amongst the Peguans who had recaptured Rangoon and driven the Burmese troops to Henzada. The news of the early arrival of the Burman sovereign gave spirit to the Burmans and spread dismay amongst the Peguans. The Burmese general collected his forces and attacked and routed the Talaing at Rangoon before the arrival of Aloung-bhoora, who, on assuming command, finally trod out the rebellion.

About this time Mr. Whitehill arrived in Rangoon; he had been on board the Arcot when that vessel assisted the Talaing against the Burmans as already related; Aloung-bhoora ordered him to be seized and he was sent a close prisoner to Prome where he met the Burman king coming down to Rangoon; he himself was liberated but he had to pay a heavy ransom and all his goods were confiscated.

Owing to the state of affairs in India the government determined on abolishing the settlement on Negrais and Captain Newton and the troops were recalled, reaching Bengal in May 1759. Shortly afterwards a Mr. Southbey was sent to Negrais to superintend such portion of the establishment as remained and arrived on the 4th October 1759 in the Victoria, Captain Alves. Mr. Southbey disembarked and was visited by Antony (who had accompanied Ensign Lister's mission) who was asked to dinner the next day to meet the whole of the English officers. When all were assembled Antony withdrew and a party of armed Burmans rushed in and put every

European to the sword, except a Mr. Robertson and a Mr. Briggs with eight Europeans of inferior note who happened to be in a room below. These were attacked by another party of Burmans and five out of their number killed; the remainder took refuge in a store-room where they defended themselves for some time, surrendering at last on the promise that their lives should be spared but only to experience the utmost brutality. Mr. Briggs, being wounded and unable to walk, was speared to death, and the remaining captives were taken to the river where Antony was waiting for them with boats; they were all taken to Rangoon. The Indiaman Shaftesbury happened to be in the harbour at the time and one of her midshipmen who was present managed to escape in the pinnace and give the alarm. "The "Burmans having thus become masters of the fortified works, and "having dispersed or put to death all the settlers, turned the guns of "the battery, nine in number, against the Shaftesbury. In the "performance of this service, Laveene, the Frenchman, was con-"spicuously active; indeed the whole of this diabolic assassination "seems to have been executed under his direction: it was afterwards "ascertained that, when the English were surprised and overpowered "by the Burmans, this man rushed into the works at the head of a "body of banditti and completed the slaughter. The precision with "which the guns were pointed sufficiently demonstrated that he who "had the management was not deficient in the art of gunnery. The "Shaftesbury returned the fire but suffered considerably from that "of the enemy; the second officer was killed, the running rigging "damaged, and nine shots were received between wind and water; "many of the Burmans are said to have fallen by the fire from the "ship: the action continued till dark, and was renewed next morning "on the part of the enemy. The Shaftesbury having unmoored in "the night weighed at daylight, and dropped down with the ebb to "the mouth of the harbour, where, beyond the range of shot, she "rode secure: the Victoria, Snow, followed her example."

The Shaftesbury sailed on the 16th October, and the Victoria somewhat later, arriving in Bengal on the 10th November 1759. It will never be known whether this massacre was planned with Aloung-bhoora's sanction or not; he certainly believed that our factory at Negrais had been in communication with his enemies, the Peguans, and that Mr. Hope, who had remained in charge after Lieutenant Newton's departure, had supplied them with five hundred muskets. He never saw the prisoners.

Whilst affairs were taking this course in the delta of the Irrawaddy, Aloung-bhoora had gone south to attack the king of Siam. The Burman commander at Tavoy, instigated by the Siamese and by the numerous Peguans who had fled thither, declared himself

independent: a strong force under two of the best Burman generals was sent against him, and when the land force arrived within one day's march of Tavoy the rebellious governor came out and gave himself up and was put to death by order of the Burman monarch. Aloung-bhoora joined his army at Tavoy and soon found a pretext for invading the Siamese territories: he accused the Siamese authorities of harbouring runaway malefactors and affording assistance to the Talaing. He advanced on Mergui which, badly fortified, succumbed at once, and then ascending the Tenasserim river captured the walled town of Tenasserim: leaving garrisons here he crossed the peninsula and advanced on the capital, the Siamese avoiding a general action but harassing his troops by repeated attacks. After a tedious march of a month he approached Ayodhia and sat down before it, erecting stockades for the protection of his own army. Two days after the stockades were completed he was seized with a mortal sickness: he immediately gave orders for a retreat hoping to reach Moot-tsho-bho and arrange for the succession so that there might be no dispute after his death. The army retired by the shortest route, but the approaches of the disease were so rapid that the king expired about the 15th May 1760, two days' march from Martaban, before he had attained his fiftieth year. A petty Myo-thoogyee, he raised himself to the throne of his country and established a dynasty which still reigns in Burma. He found his country conquered and oppressed by a foreigner, and he left it extending from Manipur in the north-west to Mergui in the south-east. Nor was his time solely occupied with conquests; he prohibited gambling and the sale of intoxicating liquors and he improved the administration of justice and forbade the decision of cases in the private houses of the magistrates; every judicial order was passed in public and duly registered.

Aloung-bhoora left two sons, the Tsit-kaing-meng and the Mye-htoo-meng, the latter of whom was with the army at the time of his father's death. The Mye-htoo-meng, Moung Louk, endeavoured to seize the throne, giving out that his father had, on his death-bed, named him as his successor, but he soon found that he would be unable to make head against his elder brother and he sought forgiveness for his conduct; this was readily granted. The rightful monarch was not destined to obtain the crown easily. Mienla Raja, who commanded the rear guard of Aloung-bhoora's army, had always been at enmity with the Tsit-kaing-meng and feeling that he could expect no mercy and relying on the affection of his troops he advanced suddenly to Toung-ngoo, of which he took possession, and proceeded on to Ava which surrendered to him without resistance. The Tsit-kaing-meng was then at Moot-tsho-bho collecting

troops to oppose the rebels, but he trusted mainly to the loyal portion of the army which was ascending the Irrawaddy in boats and which arrived at Tsit-kaing, a little below Ava, shortly after that city had fallen into the hands of the rebel. On receiving information of its arrival the king came down the river and joined it with the forces which he had collected. Crossing to the left bank he drove Mienla Raja into the fort of Ava which he closely invested for seven months, the rebel general vainly waiting for the assistance which he had implored from Siam. Towards the close of the year famine and desertion had done their work; Mienla Raja escaped from the fort but was arrested by the peasantry and brought back and together with the garrison of Ava which had surrendered in the meanwhile was put to death. No sooner was Mienla Raja overcome than a rebellion broke out in Toung-ngoo headed by a younger brother of Aloung-bhoora who detached a force which captured Promo but which was subsequently defeated by the Tsit-ke of Shwe-doung, a town on the same bank of the Irrawaddy about fifteen miles lower down. The Tsit-kaing-meng in person, accompanied by his brother Mye-htoo-meng, marched against his uncle, whom he took prisoner and confined in Ava. Thus it was not until 1761 that the rightful sovereign was in undisputed possession of his father's throne. He is generally known as Noung-daw-gyee.

It was during those troubles that Captain Alves was deputed by governor Holwell of Bengal and governor Pigot of Madras with conciliatory letters and presents to the Burman monarch and with instructions to obtain redress for the massacre at Negrais and the liberation of those who had then been made prisoners and who were still in confinement in Rangoon, and remuneration for Mr. Whitehill's ship and property which had been confiscated by Aloung-bhoora. On the 5th June 1760 Captain Alves reached Diamond island, at the mouth of the Bassein river, and sent up a letter to Antony, the Portuguese Superintendent, informing him of his arrival. Antony came down and took great pains to excuse his share in the massacre, attributing it entirely to the Frenchman Laveene and an Armenian named Gregory, the Collector of Customs in Rangoon. Captain Alves was induced to proceed to Bassein and when there received a letter from the viceroy of Pegu calling upon him to forward the presents for the king. This the envoy declined to do, but shortly proceeded to Rangoon in person taking the presents with him. On his arrival the viceroy forcibly took the presents from him, but allowed him to return to Bassein together with Mr. Robertson, one of the prisoners. In August he was visited by the Armenian Gregory, who brought a letter from the king directing him to proceed to "the golden feet". He accord-

ingly left and after having a considerable portion of his property stolen arrived at Tsit-kaing whence Noung-daw-gyee was besieging his rebellious general in Ava. The king positively declined to afford any redress for the massacre, saying that his soldiers might kill who they liked, or to give compensation for Mr. Whitehill's ship and property; all that he would do was to order the release of the prisoners and to give a grant of land at Bassein, refusing to allow the English to return to Negrais thus ignoring the treaty with Ensign Lister. In order to gain this little, and after much delay and the loss of his private papers which the king had taken from him, Captain Alves had to bribe the ministers largely and to pay for the release of each prisoner. Worn out and disgusted he returned to Rangoon and, placing Messrs. Robertson and Helass in charge of the timber and few remaining stores at Bassein, he sailed for Bengal where he arrived in December 1780.

As soon as Noung-daw-gyee had succeeded in putting an end to the insurrection in Ava he transferred his capital from Moot-tsho-bho to Tsit-kaing, whence he had besieged Ava and which for many years had been the metropolis of the Burman kingdom. During the remainder of his short reign he was occupied in quelling disturbances in various quarters of his empire. Dalaban, the Peguan general, who had been pardoned by Aloung-bhoora, rebelled in Martaban, but was easily overcome and was put to death, and shortly afterwards another insurrection broke out amongst the Peguans at Tsit-toung which was suppressed by the viceroy of Pegu. In March 1764 Noung-daw-gyee died at Tsit-kaing of the same disease that had brought his father to the grave, leaving an infant son named Moung-meng. On his death his brother the Mye-htoo-meng seized the reigns of government and, proclaiming himself king, would have imbued his hands in the blood of his nephew had not the child's grand-aunt, a sister of Aloung-bhoora, obtained charge of the boy on the promise that he should be brought up as a monk and never be in a position to disturb his uncle's government.

The Mye-htoo-meng on ascending the throne assumed the name of Tsheng-hpyoo-sheng or "Lord of the white elephant" and one of his first acts was to remove the capital again from Tsit-kaing to Moot-tsho-bho; but he soon became dissatisfied with the change which he had made and, acting under the advice of astrologers, he transferred it to Ava, which rapidly rose into splendour from the neglected state in which it had been left ever since the accession of Aloung-bhoora. Naturally ambitious Tsheng-hpyoo-sheng determined on making war with Siam but his preparations were not completed till 1765 and nothing was done till 1766. In that year

one Burmese army overran the province of Zeng-mai, tributary to Siam, whilst a Burman fleet captured Tavoy, which had again passed into the hands of the Siamese. The two forces then entered Siam and, though resolutely opposed, effected a junction and fought a general action, annihilating the Siamese army, and invested the capital. After two months' siege the king of Siam escaped to the hills, the capital fell, and a Siamese governor was appointed who took an oath of fidelity to the Burmese monarchy and agreed to pay an annual tribute and the Burman armies were then withdrawn.

In the commencement of 1767 Tsheng-hpyoo-sheng had to meet an invasion of his country by the Chinese. An army, said by the Burmese historians to have numbered 50,000 men, penetrated Burma from the north and passing the fort of Kwang-tung marched straight on the capital. To oppose them Tsheng-hpyoo-sheng sent one force to check their advance whilst another was sent with instructions to move round to their rear by a north-easterly line, in the meanwhile the Burman governor of Kwang-tung, finding himself unmolested, collected troops and prepared to intercept the retreat of the Chinese army. The first encounter was unfortunate for the Burmese but some days later the Chinese were attacked in front, flank and rear by the three Burmese divisions and, after an action said to have lasted three days, were completely defeated; not a man returned to tell the tale, the carnage was frightful, and all those who were not killed were taken prisoners to the capital where a special quarter was allotted to them and where they were encouraged to marry Burmese wives. The Chinese force which had advanced on the Irrawaddy river and which was besieging Bha-maw, then subject to a tributary Shan Tsaw-bwa, retired and the Burmans succeeded in making themselves once more masters of the eight Shan States† in the hills separating the Burmese dominions from the Chinese province of Yunan. In 1769 the Chinese again advanced on Burma and by the same route; the Burmans, though inferior in numbers, fought gallantly, avoiding general actions as far as possible and confining themselves to skirmishes in the forests and glens every mile of which was thoroughly well known by the peasantry hastily collected to oppose the advance of the enemy. At last the Chinese were surrounded in the hills and, being vigorously attacked, were defeated and, deprived of their arms, allowed to return to Yunan. The course pursued by his generals highly displeased the haughty and vain-glorious sovereign who in the usual vein of bombastic arrogance had ordered that the audacious

† Ho-tha, La-tha, Tsan-da, Maing-la, Maing-won, Maing-tee, Maing-mo and Kaing-ma.

invaders should be utterly destroyed and he wreaked his vengeance on them by disgracing their families; even the wife of the commander-in-chief, who was the sister of the principal queen, was obliged to stand for three days in the public streets carrying on her head the presents which had been given by the Chinese chiefs when they were made prisoners.

After the massacre of M. Bourno and the other prisoners by Aloung-bhoora in 1756 the French appear for some years to have given up all hope of trade with Burma, but in 1769, trusting possibly to their conduct during the war between the Talaing and the Burmans which, it must be confessed, was certainly as honourable as that of the English, if not more so, an embassy was sent to Tsheng-hpyoo-sheng which obtained permission to establish a factory and received some other slight concessions. But their attention was fully occupied by their struggles for power, indeed for existence, with the English in Hindustan and no advantage was ever taken of the grants made by the Burmese sovereign nor did the French ever appear again as traders in Burma.

The Siamese, in the meanwhile, had thrown off the Burman yoke. A relation of the dethroned king, who in the meanwhile had died in the forests, succeeded in displacing the new government and declared himself king. In 1771 a Burmese force was despatched southward but was met by the Siamese on the frontier and obliged to halt for reinforcements. These were collected from the southern provinces and composed mainly of Peguans who were supposed to be reconciled to the Burman dominion, but on arriving at Martaban the Talaing portion of the army rebelled, rose upon their Burman companions and commenced an indiscriminate massacre; they then proceeded to Rangoon which they invested. The petty officials of some of the more northern towns of the delta raised forces and threw themselves into Rangoon which was thus enabled to resist the assault of the Peguans. The viceroy of Pegu with 3,000 men was at once ordered south and was followed by a stronger force, who obliged the Talaing to raise the siege and retire to Martaban. Early in 1774 the viceroy with an army of 20,000 men and with 24 guns marched against Martaban: the Peguans made overtures of peace which were received with scorn and the place was taken, two of the leaders escaping to Siam and the third being captured and some time afterwards put to death. The viceroy was about to continue his advance and to resume the attack on Siam which had been checked by the revolt of the Talaing when he received information that the king was about to visit Rangoon and this, added to the fact that the season was far advanced, induced him to put his force into cantonments at Martaban.

Tsheng-hpyoo-sheng's visit to Rangoon was not one of mere pleasure; he had two objects in view, one to continue the policy initiated by his father by adding to the adornments of the Shwe Dagon pagoda and at the same time accumulate a store of merit which might help him towards a happier state when the time—nearer than he expected—came for him to die, and the other to strike terror into the hearts of his Talaing subjects. He had caused to be constructed in Ava a new htee or crown for the pagoda, of iron net-work covered with gold and profusely studded with jewels, and taking this with him he left his capital with an escort of 50,000 men and bringing in his train the old and harmless king of Pegu, Bya-mhaing-tee, who had surrendered to Aloung-bhoora, he arrived in Rangoon in October 1755. Having repaired the brick-work of the pagoda and re-gilt it from top to bottom he removed the Talaing htee and replaced it by the one which he had brought down with him. He then proceeded to carry out the main object which had brought him to Rangoon. The aged Bya-mhaing-tee was accused of complicity with the late rebellion, and brought to trial before the High Court of Justice; suborned witnesses were examined and the proceedings, conducted in regular form, resulted, as the king intended and as every one knew that they would result, in the condemnation of the royal prisoner. The High Court, carrying out the farce of the semblance of a strict adherence to forms, submitted the proceedings to Tsheng-hpyoo-sheng who confirmed the sentence of death, and the last king of the Talaing, in the heart of his own country and in the midst of his former but humble subjects whose feelings towards him were still akin to adoration, was put to death by the common executioner with "no distinction paid to him "above the meanest criminal, except that all the municipal officers "attended in their robes of ceremony to witness his last moments". The death of the Peguan king was followed by that of numerous Talaing nobles who had either really been engaged in the rebellion or whose position and influence amongst their countrymen was such as to render them dangerous to the Burmese government. Having thus satiated his lust for vengeance and given the Peguans a terrible example of his power and of what they might expect if they resisted his authority, he returned towards his capital but on the way was attacked by low fever which, added to the scrofula from which he was already suffering, put an end to his existence about the middle of 1776 after he had arrived at Ava, not a year after he had condemned so many of his fellow-creatures to an ignominious death.

The expeditions to Siam and the irruption of the Chinese were not the only warlike engagements in which this sovereign was

concerned. He twice overran Manipur and thus commenced a long series of aggressions which brought the Burmese into close contact with the British and partly tended to bring on the first Burmese war.

We have already seen that there were continual wars between the Manipuris and the Burmans, and that in 1755 Aloung-bhoora overran the country. In 1762 the British government entered into a treaty with the Raja of Manipur in which it promised the aid of a contingent of British troops whenever the Raja might find it expedient to attempt the recovery of those portions of his dominions which had been wrested from him by the Burmese, and he promised in return to make grants of land to the English for a fort and a factory and eight thousand cubits more round such fort and factory rent free for ever, and further to assist our trade with China, and, when put in possession of those portions of territory for the recovery of which British aid was promised, he was to indemnify us for our losses at Negrais and in Pegu. This treaty was made after Captain Alves' abortive mission in 1760 and when the British government saw that they would never obtain any redress or any commercial advantages from the Burmese sovereign. Early in 1763 the time contemplated arrived and the troops destined for the expedition, consisting of six companies of sepoys, left Chittagong : owing to the heavy rains and to sickness, however, they were unable to proceed and circumstances of a political nature rendered their recall necessary before they had reached their destination. In October of the following year a new treaty was concluded with Gouroosham, the raja, the main difference being in the amount to be paid for the support of the troops and the manner of paying it. Gouroosham soon after died and was succeeded by his brother Jaee Singh, and all communication between the British and Manipur authorities appears to have ceased. In 1765 Tsheng-hpyoo-sheng attacked Manipur and took possession of the capital, remaining there a month and retiring with his army laden with booty; no assistance of any kind was afforded by the British. On the invasion by the Burmans Jaee Singh fled and Tsheng-hpyoo-sheng placed on the throne one Eeringba, remotely connected with the reigning family, who was dispossessed by Jaee Singh when the Burmans evacuated the country. In 1774 Tsheng-hpyoo-sheng again invaded Manipur, sending a large force under three generals. The Burmese troops were met by those of Raja Jaee Singh a short distance from the capital ; a bloody conflict which lasted for three days ensued and terminated in the total defeat of the Manipuris and Jaee Singh fled into Assam. From Manipur 10,000 Burmans were detached to Cachar but were surrounded and, unable to escape and attacked by disease, dispersed and were cut off in detail by the natives or perished from want in the mazes of the forest. A second

force was sent which was more successful; the Raja of Cachar made overtures of peace and sent a royal virgin and a "tree with "its roots bound in their native clay" as signs of submission. The Moirang Raja was placed on the throne of Manipur and the Burmans retired to their own country.

Tsheng-hpyoo-sheng was succeeded by his eldest son, Tseng-goo-meng, without opposition. His first acts were to recall the army operating against Siam and to degrade the general commanding. In 1779 he put his younger brother to death and a short time afterwards, in a fit of jealousy aggravated by his intemperate habits, he drowned his favourite wife. His brutality and insensate passion for drink alienated the affections of his subjects and in 1781 the father of his murdered wife and the disgraced general of the southern army entered into a conspiracy to place on the throne his cousin, Moung-meng, the grandson of Aloung-bhoora and son of Noung-daw-gyee. In November 1781 the conspiracy came to a head; the palace was seized during Tseng-goo-meng's absence, Moung-meng was proclaimed king and Tseng-goo-meng, who was at Tsit-kaing, an outlaw. Then for the first time Tseng-goo-meng shewed personal courage. He left Tsit-kaing in a small boat and presented himself at the gate of the palace alone, and on being challenged replied "Tseng-goo-meng, lawful lord of the palace". He was allowed to enter but being met by the father of the wife whom he had so cruelly murdered he was at once cut down and no one was found to prevent or avenge his death.

Moung-meng's reign lasted only eleven days. The third son of Aloung-bhoora, the young man's uncle, Bho-daw-bhoora, who had hitherto kept retired from all public affairs at Tsit-kaing, crossed the Irrawaddy, seized on the ensigns of royalty and put his nephew to death in the usual way of executing members of the royal family. Thus in 1781 the sixth king of Aloung-bhoora's dynasty ascended the throne of Burma by the murder of his nephew. He had not been long on the throne when an attempt on his life was made. One hundred desperadoes attacked the palace and at first overcame the guard; luckily the king happened to be in the women's apartments, the guard rallied and the hundred were cut down: the object of these men or whom they proposed to make king has never been ascertained. One of the first acts of the new king, Bho-daw-bhoora, or as he is more generally called Meng-tá-ra-gyee, was to remove the capital from Ava to Amarapoora, impelled thereto by the persuasions of his astrologers. During the first year of his reign a rebellion broke out amongst the Peguans round about Rangoon which was speedily put down by the viceroy. A Talaing fisherman, resting on a supposed prophecy that the

Peguans should be raised from their abject state by a fisherman, succeeded in collecting some five hundred followers who attacked the court-house and killed several of the officials assembled there. The execution of five hundred Talaing spread such terror that it was years before they again ventured to attempt to regain their independence.

In 1783 an expedition was organized for the conquest of Arakan. The army was placed under the command of the Crown Prince, who was accompanied by his brothers, the princes of Prome, of Toung-ngoo and of Pa-gan, the two latter mere boys. Kama, on the right bank of the Irrawaddy about twenty-five miles above Prome, was fixed upon as the rendezvous, and from thence seven thousand men, nominally under the two young Princes of Toung-ngoo and Pa-gan, were sent down to Myanoung with instructions to cross the Roma range and penetrate into Arakan by the Khwa route, and a second force under the Tsa-re-daw-gyee of Shwe-goo descended the Irrawaddy in boats and proceeded by Bassein and the Khyoung-tha pass. In the meanwhile the main body under the Crown Prince dropped down the river to Prome and eventually to Padoung, some fifteen miles lower on the right bank. After waiting twenty days to enable the two detachments sent south to cross the hills the Crown Prince advanced by the Toung-goop pass, sending forward a strong advance guard under the prince of Prome. The Tsa-re-daw-gyee's force on arriving on the frontier found itself opposed by a strong body of Arakanese and halted. The prince of Prome pushing on rapidly arrived without opposition within two days march of the capital on the Koo-la-dan river, where he was met by the main body of the Arakanese army under the king of Arakan in person. Having received information of the check of the Tsa-re-daw-gyee's force he despatched a thousand men to its relief and thus reinforced the Tsa-re-daw-gyee advanced on Arakan town. The main body of the Burmese army was two or three days' march to the rear and the impetuous prince of Prome determined on attacking the Arakanese army without waiting for its arrival. Aided by the Tsa-re-daw-gyee's division he encountered the king of Arakan at a spot about two miles from the capital and completely defeated him. The king escaped and made his way towards the mouth of the Koo-la-dan, but was pursued, taken prisoner and brought back to his capital which had fallen without a blow being struck. The Burmans thus became possessed of enormous booty and of what they valued still more, a colossal brass image of Gaudama Booddha and a monster iron gun,* both of which, together with the captive ruler, were carried

* The following account of these two is taken from Colonel Yule's work on the mission to Ava in 1855:—"The colossal brass image in the Arakan pagoda is a Gautama in the "usual sitting attitude on a 'Raja-palen' or throne of the peculiar character used by the

to the capital after the surrender of the remaining provinces of the country. Arakan thus became a Burman province and the Burmese power touched the British territories in Lower Bengal.

Within little more than a year after the easy conquest of Arakan, the Burmese monarch formed the design of seizing Junkceylon, and thus, being already master of the coast of the Bay of Bengal from Mergui to the Naaf, to obtain possession of the whole west coast of the eastern peninsula, monopolize the whole trade, and bring under his sceptre a more extended territory than any ruled by his predecessors. A fleet was equipped which reached Mergui in January 1785 and a force was despatched by land *viâ* Martaban which arrived the following month. Thence the combined forces started for Junkceylon but though the expedition was at first successful the Siamese succeeded in repulsing them, on which they returned to Martaban and Rangoon. The following year another effort to annex Siam was made which proved equally ineffectual; the king in person left his capital and marching to Martaban *viâ* Toung-ngoo entered Siamese territory but was defeated with the loss of all his cannon. In 1787 the Siamese in turn invaded Tavoy but were compelled to retreat. No fresh encounter took place till 1790 when the governor of Tavoy entered into a conspiracy with the Siamese and delivered up to them the fort and territory of which he had been placed in charge by his master. The following year an army was sent overland and a fleet was despatched from Rangoon to take the town, in which, after some reverses, they succeeded owing to the treachery of the Burmese who had gone over to the Siamese but who had become discontented

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"king in the State audience hall. The figure is about twelve feet high, with all the limbs "in proportion.....' This image,' Major Phayre remarked to the Wondouk who "accompanied him on his visit to the temple ' is of very ancient date I believe.' ' It is,' "replied he, ' and a faithful representation of the living original. When the Lord " ' Gaudama visited Arakan, Chandra Surya was the king of that country. The Booddha " ' being about to depart, the king prayed him to leave his blessed remembrance and " ' substitute with them as some consolation for his absence. The Booddha consented, " ' several attempts were made to cast an image but they all failed. At length, by the " ' divine interposition, the present image was successfully obtained.' .....It is said to "have been brought across the mountains in two or more pieces. But Major Phayre "could trace no marks of breakage or separation in the metal, owing perhaps to the " thick covering of gold leaf. The people denied that the image had been broken."

As regards the iron gun Colonel Yule observes:—" A singular and enormous piece of "ordnance, which was brought from Arakan on the conquest of that country in the last "century. In construction it is similar to that great bombard Mons Meg in Edinburgh "castle, being formed of longitudinal iron bars, girt round with massive iron hoops and "all welded imperfectly together. The extreme length of the unwieldy machine is twenty-" eight feet nine inches, and its external diameter at the breech two feet seven, but the " calibre is only eleven and a half inches."

The measurements given by Symes differ but little, *viz.*, length, thirty feet, diameter at the mouth, two and a half feet and bore ten inches. The diameter at the breech (according to Yule) and at the mouth (according to Symes,) both of whom saw it, appear to be nearly the same.

with their new master's rule. Their success here enabled them to despatch a force of five thousand men to the assistance of the garrison of Mergui, which was closely invested by another Siamese army; thus reinforced the Burmese succeeded in again driving their enemies out of the country. Peace was declared in 1793.

On the conquest of Arakan in 1783 many of the Arakanese fled into British territory, preferring to leave their homes to submitting to their detested conquerors. Secure in their retreat they took every opportunity of harrassing not only the Burmans who had emigrated into and settled in Arakan but those of their fellow-countrymen who had remained behind; in short secure in British territory they carried on an organized system of robbery and plunder which the British government did little or nothing to prevent. The Burman monarch's hands were full with his wars with Siam but on peace being declared with that State in 1793 he proposed to put a stop to the plunder of his subjects in Arakan. To effect his object he adopted a course which, however much in accordance with his own pride, it was impossible for the British government to brook. Without any reference to the British authorities a force of five thousand Burmans crossed the Naaf into Chittagong with the avowed intention of arresting the most noted of the marauders who were known to have taken refuge in our territory. After the force had advanced some distance the Burman commander communicated with the Magistrate of Chittagong and declared his intention of remaining in British territory till he had effected his object and secured the persons of those in search of whom he had come, and then proceeded to stockade his camp. A British force under General Erskine was despatched against him, but owing to the good sense of the two commanders no encounter took place: the Burman general consented to retire on receiving a promise that, as soon as he was within his own borders, full enquiry should be made. General Erskine satisfied himself that the individuals were really guilty and handed them over to the Burmese. This measure has been viewed in different lights by different historians: one class, of whom Colonel Symes may be taken as an exemple, looked upon it as wise, just and prudent, whilst Dr. Wilson, the historian of the first Burmese war, Dr. Bayfield, Assistant Resident at Ava, and others speak of it in very different terms. Had the British government done its duty from the first and with a firm hand prevented the departure of all marauding expeditions from its territories to those of a neighbouring and friendly State the complication would never have arisen.

Having thus put an end, it was hoped, to all causes of difference, the Governor-General, Sir John Shore, in the following year (1795) despatched an embassy to the Burman king in order to cement

still more strongly the bonds of friendship which were supposed to exist. The speeal object, however, of the mission was to prevent the French from obtaining a footing in the Burman territories which those of them who were best acquainted with Indian affairs were anxious to do. Captain Symes of H. M's. 76th Regiment was selected as envoy and left Calcutta on the 21st February 1795 and, after a stay of a few days at the Andaman islands, arrived at the mouth of the Rangoon river on the 19th March following and anchored off Rangoon on the 20th. Here he was treated with considerable insolence which he bore with much good temper, being actuated by a desire to "acquiesce in every ceremonial that their "customs prescribed, provided such ceremonials were not deroga-"tory to his position," and utterly ignorant of what the Burmese customs really were. He was induced to visit the viceroy in the town of Pegu, and here he was somewhat better treated, and returned to Rangoon in happy ignorance of the Burmese having gained a diplomatic victory. He was detained in Rangoon on various pretexts till the 25th May when he left for the capital, Amarapoora, where he arrived on the 17th July. A somewhat mean mat house was allotted to him and he was not publicly received till the 30th August when he was taken into the palace enclosure by the western gate and, when still at some distance from the palace, was made to make an obeisance towards it, which was repeated three or four hundred yards further on, and after all was not received by the king. It was so arranged that he was received by his majesty on a "beg "pardon day," and it was thus made to appear that he, as the representative of the Governor General, had, like the envoy of a tributary, appeared before the Burman king and humbly begged pardon for any offences which the power by whom he was accredited had committed. In short he was treated with great indignity; the king took no notice of the presents which he brought nor of the Governor-General's letter and the answer to that letter, though addressed to Sir John Shore, was from the Hlwot-daw or body of ministers, and the only result of the mission was a permission to appoint a British consul in Rangoon.

The following year the Secretary to the Government of India addressed a letter to the viceroy of Pegu informing him that certain articles for which the king had expressed to Captain Symes a wish were being prepared, to which an answer was sent not from the viceroy but from one of his subordinates. In the same year the articles were sent with Captain Cox who was appointed British consul in Rangoon but who was specially instructed not to consider himself as an envoy from the Governor-General and not to attempt to proceed to the capital unless invited. After a short stay in

Rangoon he received an invitation to Amarapoora but on arriving there was treated with still greater indignity than Captain Symes had been. He thereupon informed the ministers of his intention of at once leaving, upon which they discussed the propriety of detaining the whole mission as hostages until some seven thousand refugees from Arakan (who had fled in 1783) were given up, and Chittagong, Dacca, Luckimpur and Cossimbazar "restored", together with one half of the revenues collected therein since they came into the possession of the British. Matters at length came to such a pass that the officers of the mission were pelted with stones by the mob and the British merchants placed in such danger that they determined on quitting the capital and on the 5th October Captain Cox left Amarapoora without obtaining his passports. He arrived in Rangoon on the 1st November, having been still more grossly insulted on his way down. Five days after his arrival the viceroy of Pegu issued an order prohibiting the departure of the mission from Burman territory. The Government of India, as strongly averse to war as ever, took no notice of these gross insults and Captain Cox remained in Rangoon subject to indignities of all sorts and kinds, for which no redress was demanded, until he finally left in March 1798.

In this year difficulties again arose on the Arakan frontier; the governor wrote an insolent and menacing letter to the Governor-General demanding the surrender of some fugitives from Arakan and in 1801 the Marquis Wellesley sent another mission to the Burman sovereign selecting as envoy Lieutenant-Colonel Symes. The objects with which this officer was deputed were :—

(1) To obtain an improved treaty of friendship and alliance.
(2) To obtain protection to commerce against the daily extortions of the Burmese officials at the various ports.
(3) To demand an acknowledgment or a disavowal of the insolent and threatening letters of the governor of Arakan.
(4) To obtain permission for the establishment of "a Resident" at the capital and a consul at Rangoon.
(5) To obtain the island of Negrais or some commercial advantages equivalent to the value of it.

Not one of these objects was attained. Colonel Symes arrived off Rangoon on the 31st May 1802, and was received with some insolence by the acting viceroy. On the 30th September 1802 he reached Meng-goon, where the king was, and was made to halt at an island where corpses were buried and criminals executed. Here, notwithstanding his remonstrances, he was kept utterly unnoticed for forty days and was then directed to move into a house which

had been prepared for him, and it was not until ten days more had expired that he was acknowledged by the king. In the meanwhile a French embassy had arrived; this embassy was composed of an American supercargo of a merchant vessel, a Frenchman just escaped from the Calcutta gaol, and two half French half Burmese youths. The Frenchmen denied having any authority or power from their government but the king insisted upon styling them the "French Embassy" and gave them a public audience when the British envoy had remained for two months unnoticed. On the 2nd December Colonel Symes received a verbal message that the fugitives from Arakan would not be demanded but that the king would make no treaty and would have no British resident at his capital nor consul at Rangoon, nor would he give the island of Negrais nor any equivalent commercial advantages. At last, worn out, on the 21st September Colonel Symes, without ever having been acknowledged by the Burmese except in so far as it was necessary to enable them to receive the presents which he had brought, left without an audience and without an answer to the Governor-General's letter and finally quitted Rangoon on the 20th September 1803. In May 1803 Lieutenant Canning was sent to reside in Rangoon in order to obtain good and early information regarding the state of French interests in Burma and was at first well received, the king "in consequence of the Governor-General's "desire to seek refuge under the golden feet" permitting him to reside in Rangoon. The aspect of affairs however soon changed, and towards the end of the year the acting viceroy having ordered all English letters to be opened Lieutenant Canning returned to Bengal.

It was about this period that the king was called upon to interfere in the religious affairs of Ceylon, thus repaying the service performed for his predecessors by the Sinhalese Booddhists on more than one occasion. In defiance of all rules of Booddhism the admission to the society of monks had, in the sacred island, for many years been allowed only to members of the highest caste. Several low caste candidates sought admission in Burma and were well received by the king and their co-religionists and on their return to Kandy formed a society by themselves known as the Amarapoora society and denounced the heterodox opinions and practices of the Sinhalese monks.

In 1804 a British vessel on the way from Penang to Calcutta with despatches put into the Bassein river, and the mate and a passenger went up to the town of Bassein to get wood and water. The governor detained them and directed them to write to the captain to bring his ship up and deliver up the public despatches

which he desired to open. The mate, however, requested the captain to put to sea, which he did, leaving the passenger and his chief officer behind, who, after a month's detention, were allowed to purchase boats to convey them to Bengal. No notice was taken of this outrage.

In 1809 another mission was sent under Captain Canning with instructions to explain to the Burmese Court that the French islands were under blockade and that, consequently, no ship, Burmese or otherwise, would be allowed to communicate with them; to soothe the Burmese for the consequent loss to their trade; to explain that the brig "Burma" which had been condemned by the prize Court was proved to be French property; to protect British persons and property in Burma; and narrowly to watch the state of French interests. Captain Canning was not to proceed further than Rangoon unless specially invited and was to return with all convenient speed as soon as he had accomplished the objects of his mission. He arrived in Rangoon on the 2nd October 1809 and was well received, and after some delay left for the capital on the 21st December and arrived there on the 10th February 1810. On the 14th he was requested to move into the house which had been got ready for him, but on arriving opposite to it with his boats he was forbidden to enter it till he received special orders, which were sent on the 16th. He remained unnoticed till the 19th, when he was informed that a deputation from the Hlwot-daw would wait upon him. This took place on the 21st and the conference lasted eight hours in a shed prepared for the occasion, on entering which the English Envoy was requested to make an obeisance to the palace two miles off. On the 28th he was received by the king who expressed a wish, which every succeeding Burmese monarch has equally had, to receive an ambassador from the Sovereign of England direct as he considered the Governor-General beneath him. Notwithstanding the good-humoured manner in which the king had received him he could get no answer for several days, and at last, on the 17th March, he received a letter from the ministers to the Governor-General telling the latter always to consider himself under the protection of his Burman majesty and hinting at the "restoration" of Dacca and Chittagong. Captain Canning insisted on an alteration being made in the letter and the ministers promised that such alteration should be made but on the 22nd a still more insolent one was received. The Burmese Court was anxious to get rid of him and he received two messages to know why he delayed his departure; he quitted Amarapoora that evening and arrived in Rangoon on the 14th April 1810. Here he found that the acting viceroy had detained his mails and declined to give

them up until he was made acquainted with their contents. A new viceroy having arrived his mails were delived to him and he finally left Rangoon on the 19th April.

In 1811 troubles again occurred in Arakan. A refugee named Khyeng-byan (commonly styled King Berring) succeeded in collecting a large force in Chittagong and overran Arakan, conquering the whole country except the capital. That such a force should be raised in British territory for the purpose of attacking a friendly neighbour, and without any interference on the part of the British authorities, naturally highly irritated the Burmese government. They succeeded in driving Khyeng-byan out of Arakan and the governor marched a considerable force to the Naaf and demanded the surrender of the fugitives, whilst parties of his troops actually crossed the frontier and penetrated into British territory; these however were recalled. In October Captain Canning had been sent on a third mission with instructions to remove from the mind of the Burmese government the idea which they not unnaturally entertained that Khyeng-byan's expedition had been instigated by the British government; to protest against the unfriendly conduct of the local authorities in Pegu towards traders visiting their ports; and to explain the seizure of a Burmese vessel and her cargo at Coringa. Whilst still in Rangoon he received additional instructions rendered necessary by the conduct of the governor of Arakan: they were, 1st, to complain of the breach of British territory; 2nd, to state that it was solely owing to the friendly disposition of the British government that it did not at once appeal to arms and that no negotiations would be entertained until the recall of the Burmese troops from the frontier; 3rd, that the Chittagong frontier had been fortified, and that the British government would be at all times ready to resist insolence and aggression; and 4th, that the question of the surrender of the refugees must be negotiated by proper persons. Everything seemed in a fair way of adjustment when the Burmese made another raid into British territory and the governor of Rangoon attempted to seize the person of the envoy, who, however, managed to escape to his ship whence he sent a report to Bengal. Shortly afterwards matters were arranged and Captain Canning again landed. On the receipt of the envoy's report the British government recalled him, but on the 12th June 1812 authorized his remaining in Rangoon, again recalling him on the 20th June. The Court of Ava, highly incensed, sent down order after order for Captain Canning to be siezed and sent up to the capital, but the viceroy felt himself unable to comply owing to the presence of two British war vessels. Finding its orders disobeyed the Burmese government in August sent down a new viceroy, who on his arrival

issued an order that the British mission was not to leave the country. Captain Canning immediately embarked and on the 16th August sailed for Bengal. The king of Burma then sent envoys to Calcutta and issued orders to the army in Arakan to remain within its own lines. The Burmese envoys arrived in Calcutta in April 1813 and presented a demand for the extradition of the fugitives, which was refused. The Burmese government at the same time removed those duties which had so harrassed traders, and immediately vessels from almost every port in India resorted to Rangoon, on which the grasping authorities re-imposed the old duties and added two per cent. to them.

Khyeng-byan continued to annoy the Burmese authorities in Arakan and they for the fifth time sent troops across the Naaf, but on a remonstrance being made the governor promised to punish the leaders. The unhealthiness of the country and the disagreeable nature of the duty of hunting up the refugees in their mountain haunts induced the Governor-General in this year, 1814, to authorize the governor of Arakan to send small parties of troops into British territory, provided that they confined themselves to the hills: to this the governor replied that "the British must furnish the "Burmese troops with stores, ammunition, &c., whilst employed "in British territory." In the meantime they made a sixth incursion and killed two innocent British subjects. In 1815 Khyeng-byan died, and in 1816 the other leaders surrendered themselves to the British authorities. On learning this the governor of Arakan sent a peremptory demand for their surrender, which was refused.

In 1817 the Burmese government attempted to intrigue against us with the Court of Lahore, employing three natives of India a its agents, and in 1818 it made overtures to the Mahrattas. In July of this year the governor of Ramree wrote a most insolent letter in the name of the king of Ava demanding the cession of Ramoo, Chittagong, Dacca and Moorshedabad, on which the Governor-General wrote to the viceroy of Pegu expressing a hope that the governor of Ramree would be punished for his insolence.

In 1819, after a reign of thirty-eight years, king Bhodawbhoora died in his capital of Amarapoora. Notwithstanding his crimes he was not only an able but a prudent sovereign. More ambitious than his nephew, Tseng-goo-meng, he was not content with ruling a country which extended from Manipur to Mergui, and which included the principality of Zeng-mai on the east which had been wrested from the Siamese, and Quantong and the eight Shan States, Hotha, Latha, Tsan-da, Maing-tee, Maing-la, Mo-won, Maing-mo and Kaing-ma in the north which had been taken from the Chinese, but whilst extending Burman influence in the north-

east his armies overran and conquered the ancient, and hitherto independent, kingdom of Arakan. He continued the war with Siam which Tseng-goo-meng had put a stop to, and maintained a firm grasp on Tavoy and Mergui from which he drove the Siamese troops, whilst he crushed with no light hand the rebellions which broke out amongst his subjects in the south.

CHAPTER X.

HISTORY.

FROM THE ACCESSION OF HPA-GYEE-DAW (1819) TO THE REBELLION OF PRINCE THARRAWADDY (1837), INCLUDING THE FIRST ANGLO-BURMESE WAR.

Bhodaw-bhoora had two sons, the eldest of whom died during his father's lifetime leaving a son, the Pa-doung-meng, who in 1819 on the death of his grandfather ascended the throne under the title of Hpa-gyee-daw. The most important event in this sovereign's reign of eighteen years was the war which he waged with the British and which resulted in his losing Arakan and Tenasserim, Cachar, Jyntea and Assam, and resigning all claims to interference in Manipur and Siam. The causes of this war, so disastrous to the Burmese, must be sought for in a long series of events from about 1774 A.D.

It has already been stated that in that year the Burmese invaded Manipur and, having expelled the ruling prince, Jaee Singh, and placed the Moirang raja upon the throne, retired within their own territory, content with the promise of tribute and with the determination rigidly to exact it. Between 1775 and 1782 Jaee Singh made four attempts to regain his throne, on the three first occasions being driven out by the Burmese but on the last making an arrangement with them by which he remained unmolested until his death in 1799 when on a pilgrimage to Nuddea. He was succeeded by his eldest son Robinchandru, who was murdered in 1801, as was his brother and successor Modoochandru, in 1806. On the death of Modoochandru a third brother, Choorjit, ascended the throne on which a fourth, Musjit, immediately conspired against him, but being unsuccessful fled to Ava, whence an envoy was sent who secured the traitor's pardon. Soon afterwards he again rebelled but, repulsed in two attacks on the capital, he escaped into Burma where he remained till 1812, when he succeeded in inducing the king, Bhodaw-bhoora, to place him on his brother's throne, ceding in return the valley of Kubo and acknowledging his dependence on the Burman monarch. No sooner was his position secure than he murdered the principal adherents of his brother Choorjit and attempted to murder all his nephews.

In Assam, as in Manipur, the Burmese, taking advantage of internal dissensions, had succeeded in rendering themselves virtual masters of the country. Upon the death of Raja Kamaleswar in 1810 one Chandra Kant was raised to the throne by the Boora-gohain, one of the hereditary high officers of State; in return Chandra Kant encouraged his servants in a conspiracy against the Gohain, but the plot being discovered was obliged to disavow all knowledge of it. The Bara-phokun, another hereditary high officer of State but inferior to the Boora-gohain, who was concerned in the conspiracy, fled to Calcutta seeking for aid for his master, but meeting with no encouragement he passed over into Burma and Bhodaw-bhoora at once furnished him with a force of fourteen thousand men. Two days before their arrival in Assam the Boora-gohain died and was succeeded by his son who, on the approach of the Burmese troops, sought refuge in Gowhatti. Chandra Kant rewarded the Bara-phokun by making him his minister and paid the expenses of the Burmese force which was almost immediately withdrawn. Soon afterwards Chandra Kant, who appears to have been a monster of wickedness, treacherously killed his minister the Bara-phokun, whose family and relations succeeded in making good their escape to Ava. In the meanwhile the Boora-gohain, who was still in Gowhatti, assisted a member of the royal family, Purandhur Singh, to seize the throne, and Chandra Kant being captured his ears were slit so as to render his return to power impossible. Early in 1818 the Burmese despatched another force to avenge the death of their ally the Bara-phokun and to regulate the succession to the throne: the Assamese army was defeated and Purandhur Singh retired to Gowhatti, Chandra Kant, notwitnstanding his having put the Bara-phokun to death, being replaced on the throne; but a Burman force under the Maha Thee-la-wa was left, nominally to protect in reality to watch, him and to hold the country.

It was at this period, in 1819, that the Burmese sovereign Bhodaw-bhoora died, after a reign of thirty-eight years, and was succeeded by his grandson Hpa-gyee-daw, the son of the deceased crown prince, the conqueror of Arakan. Though Hpa-gyee-daw's succession to the throne was unopposed, he commenced his reign by the slaughter of nearly two hundred public officers. The Burman power touched the British in the north-west and in the south-west and thus instead of having as our neighbours on the east feeble and distracted states we had a powerful and ambitious government which threatened the open plains of British India and which only wanted a pretext to attempt to extend its conquests westward. All resistance to it, in its ignorance and pride, it looked upon as presumptuous and vain, little thinking that the power it so despised

and with which it was so anxious to measure its strength was, in the short space of thirty years, to deprive it of the whole of its coast line and to wrest from it its most fertile province.

On the accession of Hpa-gyee-daw in 1819 all the tributary princes were summoned to do personal homage to the suzerain, and among them Marjit, the Raja of Manipur. For some time past however he had not been on good terms with the court of Ava; notwithstanding his renunciation of all rights over the valley of Kubo large quantities of valuable timber had been felled therein by Manipuris and Marjit himself had offended against a Burman sumptuary law, which is insisted on with a tenacity incomprehensible to Europeans, in building for himself a palace profusely gilt and ornamented with the royal pyathat or spire; on both these subjects the court of Ava had made remonstrances. The Manipur prince, distrusting the Burmese government, declined attending in person at the installation of Hpa-gyee-daw, pleading as an excuse the enmity of his brothers and the strong probability that they would take advantage of his absence to foment disturbances in his State and, possibly, endeavour to seize the throne. This refusal to do homage, following on the assumption of the emblems of royalty on his palace, was looked upon as evidence that Marjit was aiming at independence and a Burmese force was at once despatched against him. The Manipuris were defeated and Marjit fled to Cachar which had been treacherously taken possession of by his brother Choorjit who received him kindly and into whose hands he formally resigned the sovereignty of Manipur, of which, with the assistance of the Burmans, he had deprived him seven years before. On this occasion the Burmese troops remained in the country but were continually harrassed by Petumbhur Singh and Heerachandru, nephews of Choorjit and Marjit, who succeeded in cutting off many of their small detachments, and in 1822 in decoying into an ambush and in almost annihilating a strong force, but who eventually, owing to the devastation of the country, were obliged to withdraw to Cachar. The Burmans placed on the throne a puppet of their own named Shabool and in 1823 Petumbhur Singh was despatched against him and having succeeded in worsting him declared himself sovereign. His uncle, Gumbheer Singh, marched to attack the usurper and drove him into Burma where he remained, but was himself however, owing to the impossibility of supporting his troops, obliged to return, and quarrels arising between the three brothers Choorjit retired to Sylhet, leaving Gumbheer Singh and Marjit in possession of Cachar, of which its rightful Raja, Govindchander, had been deprived in 1818.

Whilst these transactions were taking place in Manipur the Burmese were not idle in Assam. As soon as the Maha Thee-la-wa, the commander of the Burman force, had replaced Chandra Kant on the throne he advanced on Gowhatti, whither Purandhur Singh and the Boora-gohain had escaped, upon which they sought refuge in British territory. In a very short time Chandra Kant's brother-in-law and one of his ministers were put to death by the Burman general, on which Chandra Kant fled to Gowhatti and notwithstanding all the Maha Thee-la-wa's endeavours declined to replace himself in his power; in revenge the Maha Thee-la-wa executed a number of Assamese, upon which Chandra Kant retaliated by putting to death the Burmans who had been sent to induce him to return. The Maha Thee-la-wa at once marched against him and forced him to retreat towards the British frontier. The British government, anxious to prevent the occupation of Assam by the Burmese, furnished Chandra Kant with arms and ammunition, and thus assisted he was able to regain possession of the western portion of Assam, but large reinforcements arriving under the Maha Ban-doo-la in the beginning of 1822 he was defeated and again compelled to seek safety in flight. The Burman commanders, believing that he would enter British territory, wrote to the British government in the usual arrogant style that, though anxious to remain on friendly terms with the English, they had received orders, which they would certainly carry out, to pursue and arrest the fugitive wherever they might find him, a threat which was never carried out. In July the Ban-doo-la returned leaving the Maha Thee-la-wa in charge of what was now a Burman province. Attacks on British villages soon commenced and an island in the Berhampooter, on which the English flag was flying, was claimed by the Burmese, the flag thrown down and a force collected to support their claim; this was not resented by the British, but sickness soon forced the Maha Thee-la-wa to withdraw the troops. These wanton attacks rendered it necessary for the British government to take steps to protect its north-east frontier and with this object Cachar was taken under British protection so that the principal passes into Sylhet could be occupied and any advance of the Burmans from Manipur checked.

The aggressions on the Chittagong frontier had meanwhile been uninterrupted. In 1821 the elephant party employed in the Ramoo hills was carried off, thrown into confinement and a large ransom demanded, and the outrage was repeated in the beginning of 1822, upon which urgent representations were made to the Burmese government, but without effect. The Burmese claimed the right of levying a toll upon all boats entering the Naaf and in January 1823 a native boat passing up the west or British side was

stopped by an armed Burman boat and on the payment of toll being refused fired into and the steersman killed. Reports were soon received of the collection of a large armed force on the Burman side and in consequence the guard on Shapooree, called by the Burmese Sheng-bhyoo-kywon, was strengthened. This island was undoubtedly British territory : it was close to the west bank and the channel between it and the shore was fordable at low tide, nevertheless the Burmans claimed it and insisted on the guard being withdrawn, and on the night of the 24th September one thousand Burmans landed, attacked the guard, killed three, wounded four and drove the rest off the island. A strong remonstrance was addressed to the king of Burma which elicited no reply. On the 21st November the island was re-occupied by two companies of the 2-20th Regt. B. N. I. with two six-pounders, no attempt at resistance being made by the Burmese who, however, openly asserted that the result would be war between the two nations. The British government, anxious to avoid the expense of a war, endeavoured to adjust the dispute amicably and Mr. Robertson and Captain Cheape were deputed to discuss the question but the Burmese Commissioners refused to hold any conversation on the matter until the island was acknowledged to belong to the king of Burma or at least to be neutral territory. The reigning sovereign in Burma was childish, arrogant and violent, and his favourite wife, a woman of low extraction, and her brother, who was formerly a fishmonger and was a man of intelligence but superstitious, cowardly, brutal and grasping to a degree, exercised extraordinary influence over him. These two and his ministers, remembering only their comparatively easy victories over the Peguans and Siamese, and the Maha Theela-wa and the Maha Bandoola, intoxicated with their success in Manipur and Assam and confirmed by the mild conduct of the British government in their belief that sooner than oppose force to force they would give in to all the insolent demands of the Burmese Court, all pressed him to go to war and assured him of an easy victory.

Hostilities commenced on the north-west frontier. In October 1823 information was received that a strong body of Burmese troops was assembling in Assam for an attack on Cachar, then under British protection, and eventually on British territories. A force was at once sent to Sylhet, consisting of part of the 1-10th B. N. I., three companies of the 2-23rd B. N. I., four companies of the Rungpur local corps and a few guns, and was posted at Bhadrapur, Jatrapur and Talein under Major Newton and Captains Johnstone and Bowe, whilst the Burman commander was warned not to enter Cachar; yet in the beginning of January 1824 a large Burman

force advanced into that State and stockaded itself at Bikrampur, whilst another moved from Manipur and a third upon Jyntea. Major Newton, concentrating the whole of his force, moved upon Bikrampur and drove the Burmans out of their stockade but being unable to prevent their effecting a junction with the detachment from Manipur he retired to Sylhet after the action. The Burman commander had addressed the Raja of Jyntea directing him to come in with presents and submit to Burman authority and the Raja had in consequence thrown himself on British protection. Mr. Scott, the Commissioner, informed the Thee-la-wa that though the English had no objection to his establishing Chandra Kant on the throne yet that the presence of a Burman army for this purpose could not be permitted and that any attempt on Jyntea would be resisted. The Thee-la-wa declined to give any answer until he heard from Ava and in the meanwhile continued his advance to Jatrapur where the Assam and Manipur divisions of his army commenced to stockade themselves. Captain Johnstone, who commanded at Bhadrapur, moved against them with a wing of the 1-10th B. N. I., a company of the 2-23rd B. N. I. and a small party of the Rungpur local corps and drove them from their works at the point of the bayonet. The Assam division retired to the Bherteka pass and the Manipur division to Dudpatli; Lieutenant-Colonel Bowen, who had assumed command, pursued the former and, overtaking them at the foot of the pass, forced their stockade and drove them into the hills; he then marched against Dudpatli but the assault failed and after losing one hundred and fifty sepoys and one officer (Lieutenant Armstrong of the 1-10th B. N. I.) he retired to Jatrapur where the force was joined on the 27th February by Colonel Innes, who assumed command, with four guns and the 1-19th B. N. I. In the meanwhile, however, the Manipur division of the Burman army having evacuated Cachar the British troops were cantoned in Sylhet.

These attacks from the north-east and the continued outrages on the Chittagong frontier, where the commander of the pilot vessel Sophia and another officer had been treacherously seized and sent as prisoners to Arakan, at last induced the British government to declare war in a proclamation dated the 5th March 1824. The plan of the campaign was arranged by Sir Edward Paget, the Commander-in-Chief in Bengal, and consisted in posting strong brigades along the frontier solely for defence, whilst an expedition was organized to proceed by sea and attack the most vulnerable points on the coast. Colonel Innes was stationed with a brigade in Sylhet and Colonel Shapland in Chittagong with a force consisting of the left wing 13th B. N. I., five companies of the 2-20th B. N. I., the 1-23rd B. N. I. the provincial battalion and a local levy, of which five companies

of the 1-23rd B. N. I., with details from the provincial battalion and Mug levy and two guns under Captain Noton were posted at Ramoo. The Assam brigade, with its head-quarters at Gowalpara, was under Brigadier McMorine and consisted of seven companies of the 2-23rd B. N. I., six companies of the Rungpur local corps, the Dinapur local corps, a wing of the Champaram local corps, three brigades of six-pounders, a small body of irregular horse and a gun-boat flotilla on the Berhampooter. The force which was to make a descent on the coast was placed under the command of Sir Archibald Campbell, K. C. B., and was composed of two divisions; one furnished by Madras, consisting of the 41st and 89th Regts. the Madras European Regt. seven battalions of native infantry and four companies of artillery, altogether rather more than nine thousand men, under Brigadier-General Macbean, and the other by Bengal composed of the 13th and 38th Regts. the 2-20th B. N. I., two companies of European artillery, in all two thousand two hundred men: the total force under Sir A. Campbell was thus eleven thousand five hundred men of whom five thousand were Europeans. The Bengal division was accompanied by twenty gun-brigs and by twenty row boats each carrying an eighteen-pounder, and by H. M. ships Larne and Sophia, several Company's cruisers and one steamer, the little Diana.

Sir Edward Paget's plan was so far modified that it was determined to drive the Burmans out of Assam and accordingly on the 24th March the force moved from Gowalpara and on the 23rd arrived at Gowhatti which the Burmese evacuated. The British troops continued their advance under Colonel Richards, who had succeeded to the command on the death of General McMorine from cholera, and after one or two slight actions made themselves masters, before the rains set in, of a large portion of country between Gowhatti and Gowalpara and established their head-quarters at Kaliabur. Matters had not progressed so favourably in Chittagong: the Bandoola commanded in Arakan and early in May he despatched a force which, after very hard fighting, completely cut up Captain Noton's detachment, killing Captains Noton, Trueman and Pringle, Lieutenant Grigg, Ensign Bennett and Assistant Surgeon Maysmore, the only other officers present, Lieutenants Scott, Campbell and Codrington escaping, the two former wounded. Colonel Shapland was immediately reinforced but the Burman general did not attempt to follow up his success and the operations in Pegu having rendered his recall necessary the Burmans abandoned all their posts north of the Naaf.

The Madras and Bengal divisions of Sir A. Campbell's army assembled at Port Cornwallis in the Andaman islands and were

here joined by H. M's. frigate Liffey, Commodore Grant, and the sloop of war Slaney. Detachments were sent against Cheduba under Brigadier McCreagh and Negrais under Major Wahab whilst the rest of the force proceeded to Rangoon and arrived off the mouth of the river on the 9th May 1824. On the morning of the 11th the ships proceeded up the river without opposition and the Liffey anchored opposite to the main battery. A fire was opened upon the fleet which was soon silenced and detachments of the 13th, 38th, and 41st Regts. being landed the town was in the possession of the British in twenty minutes. The following days were occupied in landing the rest of the troops and in searching for armed boats and rafts; a stockade being discovered at Kyee-myeng-daing, then a few miles above but now a suburb of the town, it was stormed by a detachment of the 38th Regt. assisted by the fire from the boats of the Liffey and carried with the loss of one officer, Lieutenant Kerr of the 38th Regt.; Lieutenant Wilkinson, R. N. commanding the boats was dangerously wounded.

The town had been abondoned by the inhabitants so that the troops had to depend upon Bengal and Madras for supplies as well as for means of conveyance for the march inland, whilst at the same time it was necessary to remain in Rangoon as it was impossible to collect and equip a flotilla of boats to proceed up the river or to man it when equipped. Every endeavour was made to protect the troops from the inclemency of the weather and advantage was taken of the numerous spacious monasteries and rest-houses which lined the approach to the great Shwe Dagon pagoda and were dotted over its terraces. The pagoda itself, the key of the British position, was held by a part of the 89th Regt. and the Madras Artillery.

The detachments sent against Cheduba and Negrais rejoined the main body in June. Cheduba had been taken, the Raja or governor sent prisoner to Calcutta, and a detachment of the 20th B. N. I. with the Slaney left for the protection of the island. At Negrais Major Wahab had destroyed a stockade from which he drove the enemy and brought away the guns and ammunition found in it.

The troops in Rangoon were not allowed to remain unmolested; the Burmans gradually pushed their intrenchments closer and closer but were driven off by Sir A. Campbell in person with a small force which suffered severely, and by a second attack made by the light company of the 38th under Major Piper. Colonel Godwin was sent against Than-lyeng (Syriam) but found it deserted. In June the Burmese made overtures of peace; two officials arrived deputed by the Thek-kya Won-gyee, the newly appointed Viceroy

of Pegu, inviting the British Commissioners to an interview at Donabyoo and undertaking to remain as hostages. This was refused and hostilities recommenced; two strong stockades at Kyee-myeng-daing were captured and occupied by the British who thus secured the town from being threatened from that direction and protected their own flank. In the meanwhile the Burmese were concentrating their forces at Donabyoo whilst at the same time a strong *corps d'armée* was intrenched in the close neighbourhood of Rangoon. The state of the British troops was very bad; relying upon the official reports of the facilities for obtaining meat and vegetables in Rangoon, no steps had been taken to ensure a constant supply from Bengal, and though the instant the actual state of affairs was ascertained information had been sent to the Government and measures adopted for supplying the troops yet this took time, and in the meanwhile the rations issued to the men consisted of damaged biscuit and salt meat "much of which was in a state of putresence"*; the rains had set in heavily and the country round the town was either a noisome swamp through which the men had to wade, or dense and equally pestilential forest. Fever and dysentery, scurvy and hospital gangrene made their appearance, and the number of sick increased beyond the available means of medical treatment.

On the news of the capture of Rangoon reaching Ava the Burmese Court, far from being humbled or frightened, was elated and orders were sent down to send the intrusive foreigners in chains to the capital. The Thek-kya Won-gyee was appointed to the command and on the 1st of July he put his whole force in motion to carry out the orders which had been issued to him. He received a decisive check but, nothing daunted, he continued augmenting his forces until, on the 8th July, Sir A. Campbell moved out in force and drove the enemy from all their stockades on the Rangoon river. Soon afterwards the Burmans, who had re-occupied and were fortifying Than-lyeng (Syriam), were driven out by a detachment under Lieutenant-Colonel Kelly.

Finding it impossible to engage in active operations in the valley of the Irrawaddy Sir A. Campbell despatched a force to attack Tavoy and Mergui, and a second in November under Colonel Godwin to capture Martaban. Tavoy fell easily owing to dissensions in the garrison, but greater resistance was offered at Mergui, the stockade of which was taken by assault. The inhabitants were utterly indifferent to the change of masters, and leaving garrisons in the two towns Colonel Miles returned to Ran-

* Wilson's narrative of the Burmese war of 1824-26, p.p. 86, 87.

goon in November. Colonel Godwin was equally successful, the Burmans evacuated their intrenchments and Martaban was occupied by a British force until the end of the war. Lieutenant-Colonel Mallett, who had been sent against Pegu, took possession of that town without resistance. Thus while the main army was confined to Rangoon the British made themselves masters of Martaban, Tavoy, Mergui and Pegu, having already occupied Cheduba. During August and September no action of any importance took place near Rangoon, but in the beginning of October a detachment under Colonel Smith suffered a severe defeat near Kyaik-ka-lo, a short distance from Rangoon, a disaster which was retrieved by a force under Brigadier McBean sent out the day after the return of the remainder of Colonel Smith's party. About the same time the Burmans were driven from their stockades at Htan-ta-beng at the junction of the river Hlaing and the Pan-hlaing creek. The Thek-kya Won-gyee had been superseded by the Prince of Tharrawaddy, the king's brother, who had fixed his head-quarters at Donabyoo, and the Burman Court, which now commenced to fear the results of the war, waited with impatience for the arrival on the scene of action of the invincible Maha Bandoola who had been recalled with his army from Arakan. About the end of November the English general learned from an intercepted despatch that the Arakan army had arrived at Donabyoo and that the Maha Bandoola, who had proceeded to the capital for instructions, was about to leave Prome with strong reinforcements, whilst in August and September accessions to the British force had been received from Madras, and before the end of the year the 47th Regt. and a portion of the Governor-General's body-guard arrived from Bengal. Towards the end of November and in the beginning of December the grand army under the Bandoola advanced to Rangoon and closely invested the British lines; some slight skirmishes took place during the first days of December but on the 5th Sir A. Campbell attacked and completely defeated the Burmans; their last fort at Dala was captured on the 8th and on the 15th the Maha Thee-la-wa, who had formerly been commanding in Assam, was driven out of his intrenchments at Kokaing. This changed the whole face of affairs and the British were now in a position to advance on the capital.

At the commencement of the rains in 1824 the British force had not succeeded in driving the Burmese altogether out of Assam, but early in 1825 they advanced and captured all the posts held by the enemy, finally taking Rungpur, the capital, about the end of January when Colonel Richards granted them terms according to which they evacuated the whole of Assam. About the same time a strong force under General Shuldham was pushed forward on Mani-

pur but owing to the difficulties of the road and the early setting in of the rains was recalled to Dacca about the end of March, a detachment being left in Cachar and a strong body under General Donkin quartered at Sylhet. What the British force was unable to accomplish was done by Gumbheer Singh with his own undisciplined levy; accompanied by Lieutenant Pemberton he advanced to Manipur whence the Burmans retreated on his approach, and he thus cleared Manipur of the enemy.

The operations of the army in Rangoon having necessitated the withdrawal of the Burman troops from Arakan the British Government determined on sending a force into that country from Chittagong. It was placed under the command of Brigadier-General Morrison and was composed of the 44th and 54th Regts. the 26th, 42nd, 49th, and 62nd B. N. I., the 10th and 16th M. N. I. and the local levy, with some pioneers and artillery, and was accompanied by a flotilla of pilot vessels and gun-brigs under Commodore Hayes. The force commenced its march in January 1825 and followed the coast line, thus ensuring supplies from the flotilla. It reached the Naaf on the 1st February and the troops were slowly and gradually passed across this arm of the sea. The 54th Regt. the 10th M. N. I. and the left wing of the 16th M. N. I. then embarked on board the flotilla and proceeded by sea to the mouth of the Ma-yoo river, the remainder of the force continuing its march along the coast. The land column arrived on the 22nd February but some delay was caused by a squall which had dispersed the boats and even compelled those carrying the 54th Regt. to return. The flotilla joined on the 27th February and the troops were then, with much difficulty, moved across but it was not until the 20th March that they were prepared to continue their advance. On the 22nd February Commodore Hayes had entered the Koo-la-dan or Arakan river and proceeded up towards Arakan but had been stopped by the enemy's works at Khyoung Pala and after a sharp engagement of two hours had been obliged to drop down the river. The force under General Morrison proceeded up the river in boats and on the 29th attacked the eastern defences of the town of Arakan, the capital of the country; the attacking party was repulsed but on the 30th and 31st fresh attacks were made and advanced positions gained and on the morning of the 1st April the enemy, panic-struck, abandoned the defences and the town was in the possession of the British. It only remained to dislodge the Burmans from Ramree and Sandoway, and for this purpose a force was sent under Brigadier McBean. The detachment arrived in the Cheduba roads on the 18th April and found Ramree undefended and on proceeding to to Sandoway, where they arrived on the 30th April, they found that

the river had been staked and stockades erected, but that the Burmese had withdrawn all their troops on hearing of the fall of the capital. In just three months the whole of Arakan was taken. Whilst General McBean had been engaged in taking possession of Ramree and Sandoway, a detachment under Major Buckle had been sent in pursuit of the enemy by the Dha-let pass over the Arakan Roma hills, the road across which strikes the Irrawaddy at Tsheng-hpyoo-kywon. Major Buckle proceeded no further than the ancient boundary between Arakan and Burma when, learning that the Burmese were on the frontier in force and his detachment being exhausted by fatiguing marches across an almost impracticable country, he retraced his steps to Arakan. General Morrison had taken the precaution of putting his troops into cantonments but the unhealthy nature of the country and the unavoidable privations of troops on service caused a serious outbreak of fever and dysentery which necessitated the recall of the force, detachments being left in the healthy stations of Cheduba, Ramree and Sandoway. General Morrison himself fell a victim to the climate, dying on his way to England.

Thus the early part of 1825 saw the Burmese troops driven from Assam, Manipur, Cachar and Arakan; Pegu, Martaban, Tavoy and Mergui in possession of the British; and a strong force at Rangoon prepared to advance against the capital. The state of affairs at Rangoon had entirely changed. The Maha Bandoola's grand army had been defeated and that general was at Donabyoo making every effort to re-assemble a force to oppose Sir A. Campbell's advance. The inhabitants of Rangoon had returned and were prepared to assist us with provisions and means of conveyance and the Talaing, the hereditary enemies of the Burmese, taking courage when they found that the "uncivilized foreigners", as prince Tharrawaddy in his proclamations called us, were not so easily taken prisoners and sent in chains to the "golden feet", were anxious to afford us any help in their power. Still the means of transport were highly inadequate and the Commander-in-Chief was forced to leave Rangoon with a far smaller force than he at first intended. The 38th, 41st and 47th Regts. three native battalions, the body-guard, a battery of Bengal Horse Artillery, and a part of the rocket battery were to move by land, whilst the 89th Regt. the Madras European Regt. two hundred and fifty men of the 18th B. N. I., the Foot Artillery and the rest of the rocket battery under General Cotton were to move up the Irrawaddy carrying on their way the entrenched posts at Pan-hlaing and Donabyoo and joining the land column at Tha-ra-waw. Before the column left Rangoon Colonel Elrington was sent to drive out the Burmese who had re-occupied

Than-lyeng (Syriam) and thus, with no enemy in his rear, the Commander-in-Chief felt himself in a position to advance into the heart of the country. At the same time a force under Major Sale, composed of details from the 13th Regt. and the 12th M. N. I. with some artillery, altogether about six hundred strong, was sent to Bassein and was completely successful. On the 13th February 1825 the land colum left Rangoon and on the 16th the water-column started, followed on the 17th by the detachment for Bassein. On the 2nd March the land column arrived at Tha-ra-waw, having on the 17th February encountered the Maha Thee-la-wa who abandoned his stockade on the approach of the British. On the 19th the water column attacked and took the Pan-hlaing stockades and, leaving there a detachment to keep up the communication with Rangoon, proceeded to Donabyoo where the whole force was in position on the 5th March 1825. The Bandoola had strongly fortified the post: the principal work was a square mud fort supported with palisades, its river and opposite faces nearly a mile long and protected by a ditch twenty feet broad; within were numerous pits covered with trunks of trees to protect the occupants from our shells, whilst the garrison amounted to twenty thousand men. On the 6th General Cotton sent a summons to the commander, the Maha Bandoola, to surrender and the answer though a refusal was couched in terms of unusual courtesy. An assault was ordered but the British were repulsed with some loss; information was sent to General Campbell who at once returned with the land column and arrived on the 25th. On the 1st April the mortar and enfilading batteries opened fire and on the 2nd the breaching batteries. Almost immediately afterwards the enemy was discovered to be in full retreat: the Maha Bandoola had been mortally wounded the day before by the bursting of a shell and the troops becoming disheartened abandoned their works. The advance on the capital was resumed, General McCreagh having joined with the reserve column from Rangoon and a supply of elephants and carriage cattle. On arriving at Ta-roop-maw envoys appeared who professed to desire peace. Sir A. Campbell in reply declared his readiness to enter into negotiations but asserted his intention of continuing his advance to Prome. When within eight miles of the town he received an answer proposing that he should halt, but he continued his march and found the place abandoned. The rains now commenced and the Commander-in-Chief, therefore, placed the army in cantonments in Prome. Colonel Godwin was sent with a force of about one thousand men to cross the Roma to Toung-ngoo but finding the hills impassable he turned northwards and returned to Prome *viâ* Mye-dai without coming across a trace of the enemy. The army

remained quietly at Prome till August when a fresh Burman army arrived to oppose it. The death of the Maha Bandoola and the defeat at Donabyoo followed by the steady advance to Prome had caused the utmost consternation at Court, but the necessity for the British remaining in cantonments during the rains had given the war party, headed by the queen and her brother who possessed such extraordinary influence over the king, time to regain their ascendancy and all ideas of peace vanished. On the 15th August General Cotton proceeded in the Diana to reconnoitre and found the Burmese strongly posted at Mye-dai. Instead of attacking the British troops, however, deputies arrived on the 6th September upon the pretence of negotiating a peace but in reality solely to gain time; after some discussion an armistice till the 18th October was agreed to and a meeting was arranged to take place between General Campbell and the Burmese authorities on the 23rd September at Gnyoung-beng-tshiep, about half way between the two camps. The meeting duly took place, Sir A. Campbell being accompanied by Sir James Brisbane, commanding in the Indian seas, who had arrived in the Tamar on the 22nd September. The terms proposed by the English Commissioners were—the non-interference of the Burmese in the affairs of Assam, Manipur and Cachar, the cession of Arakan, the payment of Rs. 2,000,000 as indemnification, one half to be paid at once and the Tenasserim provinces of Maulmain, Tavoy and Mergui to be retained until the second moiety was delivered, permission for a British resident to reside at the capital, and the signature of a liberal commercial treaty. To these terms the Burman Commissioners demurred but finally asked for a prolongation of the armistice to the 2nd November to give them time to submit the proposals to their sovereign: this was readily agreed to and the Burmese further pledged themselves that all Europeans and Americans who were confined at Ava should be released. Matters thus remained till the end of October when the Kyee Won-gyee informed Sir A. Campbell that the demand for money and territory precluded all possibility of a friendly arrangement. Sir Archibald at once prepared to resume offensive operations.

When the armistice had been agreed to the line of demarcation fixed upon between the two forces extended from Kama on the right bank of the Irrawaddy to Gnyoung-beng-tshiep just opposite and thence to Toung-ngoo. This line the Burmese carefully observed but they strained every nerve to strengthen their position; a strong detachment of Shan was thrown forward to Wek-htee-gan on their left flank and bodies of troops threatened both flanks of the British column. The detachment at Bassein was considered a sufficient protection on the British left and Colonel

Pepper was stationed in Pegu to cover the right, whilst the Commander-in-Chief was prepared to so manœuvre as to keep the attention of the enemy fixed on the main line of advance. Two brigades of Madras Native Infantry were detached under Colonel Macdowall to drive in the Burman advanced post, and on this occasion, as at Kyaik-ka-lo, the British arms suffered a serious check, on both occasions the attacking force being composed of native infantry without a single European private soldier. The force advanced in three columns, the main body under Colonel Macdowall coming across the enemy on the morning of the 16th November and after a sharp action forcing them into their intrenchments. In attempting to storm the works Colonel Macdowall was shot through the head and four junior officers were carried from the field; Colonel Brooke, who assumed command, found it necessary to retire on Prome and was pursued by the enemy to within nine miles of that town. The second column, under Major Evans, also met the enemy on the 16th and drove in his picquets but on debouching from the jungle was received by a fire which annihilated his leading company, and seeing no signs of the first column he retired pursued closely for three miles. The third column under Colonel Smith arrived on the field about midday of the 16th and came across the rear of that portion of the Burmese force which was pursuing Colonel Brooke; the Burmese fled, but the firing having ceased and no traces of the other two columns being visible Colonel Smith also retreated on Prome. Our total loss was Colonel Macdowall and fifty-three rank and file killed, thirteen officers wounded, of whom one, Lieutenant Ranken, subsequently died, and one hundred and fifty rank and file missing.

Sir A. Campbell determined on waiting in Prome for the attack of the enemy and the town was soon invested by sixty thousand men who overlapped the British position and threatened its communications with Rangoon. A detachment at Padoung on the right bank and a movement by Colonel Godwin on Shwe-doung some miles below Prome on the left bank relieved General Campbell's apprehensions on this score and finding that the enemy would not leave the jungles he ordered a general advance against their whole line. Leaving four regiments of native infantry in Prome the remainder of the force, supported by the flotilla under Sir James Brisbane, moved out on the 1st December and completely defeated the Burmese who retired towards Mye-dai. On the 9th December commenced the advance on Ava, one division under General Cotton moving along the bank of the river and communicating with the flotilla, the other, under General Campbell, advancing in a circuitous direction so as to turn the intrenchments which the Burmese

had erected at Mye-dai and for some miles lower down. Mye-dai was found to have been abandoned and there General Campbell fixed his head-quarters on the 19th December, where he was soon afterwards joined by General Cotton's division and the flotilla. Continuing to advance the Commander-in-Chief, on the 26th December, received a letter expressiug the wish of the Burman commander to conclude peace. Lieutenant-Colonel Tidy and Lieutenant Smith, R. N. were deputed to ascertain the terms proposed by the Burmese and in the meanwhile the column continued its march and arrived at Pan-ta-na-go opposite the Burman post of Me-lwon on the 28th, whilst the flotilla, unmolested, anchored above the Burmese position. Mr. Robertson, who had been appointed Civil Commissioner, had joined the force in November and, together with Sir James Brisbane, accompanied Sir A. Campbell in the interview which took place with the Burman Commissioners in a boat moored in the centre of the river between Me-lwon and Pan-ta-na-go. The Burmese Court was evidently anxious for peace; the members of the royal family, especially the prince of Tharrawaddy, and the cabinet strongly advised the king to come to terms, whilst the queen and her brother as strongly opposed any concessions: the peace party prevailed and a Won-gyee was sent down who was cordially assisted by the Kyee Won-gyee who, though in command of the troops, was entirely in favour of peace. The Burmese Commissioners, true to their national character, could not conduct the negotiations without fraud and solemnly declared that they had full power to agree to terms. The proposals by the British Commissioners were the same as those made by Sir A. Campbell at Gnyoung-beng-tshiep, except that the permanent cession of the Tenasserim provinces with the Salween as the boundary was insisted on and the pecuniary demand was reduced by one half. After much discussion these terms were accepted and the English copy of the treaty was signed on the 2nd and the Burmese copy on the 3rd January 1826, and an armistice was agreed upon until the 18th to enable the Won-gyee to obtain the necessary ratification.

Whilst the main force was advancing on Ava some military operations occurred in the valley of the Tsit-toung. Colonel Pepper's detachment at Pegu was mainly for defensive purposes and to prevent any force from Toung-ngoo interfering with Sir A. Campbell's communications but finding the Burmese becoming troublesome Colonel Pepper determined on an offensive movement and on the 23rd December marched on Shwe-gyeng on the left bank of the Tsit-toung river, which was occupied without resistance. From Shwe-gyeng a force under Colonel Conry was detached to

capture the fortified post of Tsit-toung, also on the left bank. Colonel Conry's attack failed and he himself and Lieutenant Adams with one native officer and nine privates were killed, and Lieutenants Harvey and Power and eighteen rank and file wounded. Colonel Pepper then moved down the river with portions of the 12th and 44th M. N. I. the flank companies of the 1st European Regt. and a small party of artillery, and arrived at Tsit-toung on the 11th January 1826. The stockade was assaulted and carried in about twenty minutes and the works destroyed, but the loss was severe. Captains Cursham and Stedman and fourteen rank and file were killed and Major Home, Lieutenants Fullerton and Gower and fifty-three rank and file wounded. Colonel Pepper was soon afterwards reinforced by four companies of the 45th Regt. seven companies of the 1st M. N. I. with details of the 3rd and 34th M. N. I., in all some eight hundred men, and all fears for the security of that portion of the country ceased.

The armistice agreed to by Sir A. Campbell was to expire on the 18th January and on the 17th four Burmese officers appeared in the English camp offering to pay down at once the first instalment and promising the release of the prisoners at Ava but asking for an extension of the armistice. Four officers were sent to Me-lwon to confer with the Won-gyee, who pleaded sickness as a reason for not meeting the Commander-in-Chief. The Won-gyee was informed of the ultimatum of the British Commissioners on which he referred to the king's brother-in-law, who was in the neighbourhood, and returning in about a quarter of an hour refused to agree. Nevertheless next day he applied for an extension of the armistice for seven or eight days, alleging that he had as yet received no communication from the capital; this was known to be untrue and a further suspension of hostilities was refused. On the 19th the position at Me-lwon was assaulted and captured and the original treaty was found in the lines. It was afterwards ascertained that the Burmese negotiators had exceeded their power and that on the terms of the treaty being made known to the king the war party again prevailed and all hope of peace was, for the time, at an end. On the news of the capture of Me-lwon arriving at Ava the king again came over to the views of the peace party to make peace and sent down Dr. Price, an American missionary, and Dr. Sandford of the Royals who had been confined in the capital. They arrived on the 31st January at Re-nan-khyoung which the column had reached and returned to Ava with a statement that the English Commissioners were prepared to accept the terms made at Me-lwon and that the force would retire to Rangoon upon the payment, Rs. 250,000, one quarter of the stipulated money payment, but that the army

would continue its advance until the treaty was ratified. On the 8th February the enemy were discovered to be in force near Pagan, whence they were driven on the 9th. The king and his Court were in the utmost consternation, but it was not until General Campbell arrived at Yan-da-boo, four marches from Ava, that they would agree to the terms of the British Commissioners. On the 24th February the ratified treaty was received and Rs. 250,000 in gold and silver bullion paid down. On the 7th March the Commander-in-Chief and the 1st Brigade embarked in boats and arrived in Rangoon on the 24th and by the end of April the whole force, with the exception of the detachment left in Rangoon until the payment of the second quarter of the indemnity, was on its way to Bengal and Madras. Thus closed the first Burmese war, engaged in by the British Government much against its inclinations and brought on by a series of insults and outrages on the part of the Burmese for a number of years yet borne with the utmost patience, and which resulted to the Burmese monarch in the loss of all the territories which his ancestors had taken from the Siamese, of Arakan which had been conquered by his father, in his utter exclusion from all interest in Assam, Cachar and Manipur where his predecessors had been paramount, and in the loss of Rs. 1,000,000 which he had to pay as the price of being humbled to the dust.

The loss to the British in men and money was enormous. The total expenditure was about five millions sterling of which one was recovered from the Burmese Government. The number of lives sacrificed was, considering the few who were killed in action, almost incredible. "The whole number of British troops that "landed in Rangoon in the first instance, comprising the 13th, "34th, 41st, 45th, 49th, and 87th Regiments, was, exclusive of "officers, 3,586; the number of reinforcements does not appear, "but that of the deaths was 3,115, of which not more than 150 "occurred in action or from wounds. Of about 150 officers 16 "were killed in action or died in consequence of their wounds, and "45 died of disease. In Arakan the loss in action was none, "but of the average strength of the two Regiments, the 44th and "54th amounting to 1,004 men, 595 died in the country in the "course of eight months and of those who quitted it not more than "half were alive at the end of twelve months."* Had there been no reinforcements the British portion of the force would have been annihilated solely by disease.

* Report on the sickness and mortality among Her Majesty's troops serving in the Burmese Empire, from the Records of the Army Medical Department, &c. By Major Alexander Tulloch. Presented to both houses of Parliament by command of Her Majesty, August 1841.

Sir Archibald Campbell proceeded to Calcutta and, after conferring with the Government, returned to Rangoon as senior Commissioner, whilst Mr. Crawford arrived as Civil Commissioner, and almost immediately proceeded to Tenasserim and fixed upon Kyaik-kha-mee, afterwards called Amherst, as the site of the headquarter station of the new province. Returning to Rangoon he was, in August, instructed to proceed to the capital for the purpose of negotiating a commercial treaty in accordance with the 7th article of the treaty of Yan-da-boo. He left Rangoon in the Diana on the 1st September and arrived at Ava on the 1st October. In addition to obtaining a commercial treaty he was instructed to settle the boundaries between Burma and Arakan on the one side and Burma and Tenasserim on the other, and to cause the Burmese Court to come to a definite agreement regarding Assam and Manipur and their boundaries. The first request made to him was to order the departure of the British troops from Rangoon, which he at once refused, referring the Won-gyee to the treaty of Yan-da-boo and pointing out that the second instalment of the indemnity was long overdue. The first conference took place on the 12th October when the British Envoy handed in a draft of the proposed treaty which, amongst other things, provided for the free exportation of gold and silver and for permission for British subjects who had married in Burma to remove their families. On the 16th another conference took place at which objections were raised by the Burmese negotiators to the exportation of the precious metals and to the removal of families and nothing was settled. On the 20th he was received by the king but was studiously insulted by the officials. They first wanted to disarm his escort before it entered the town on which he sent it back to the Diana: they then asked him to put down his umbrella though he was not within sight of the palace: he was taken round the west and south sides of the palace yard and made to dismount at the south-east angle instead of at the gate and was finally led beyond the hall in which the high council meets though it had been arranged that his party should rest there, and was asked to make a reverence to the palace: this was too much, he indignantly refused and returned to the hall which he entered with his shoes on, to which no objection was raised. Here he was kept waiting some two hours and was then sent for to the palace. He took off his shoes at the steps and after he had waited ten minutes His Majesty appeared but took no notice of the Governor-General's letter, whilst a clerk read out a petition in which it was stated that the Governor-General begged pardon for any offence which he might have committed. The Burman Court had forgotten the approach of Sir A. Campbell's force and had returned to its

ancient pride and contempt for foreigners. Several conferences ensued and on the 5th November the Burmese Commissioners themselves proposed to enter into the treaty a provision for the export of bullion and the removal of families but demanded in exchange the return of all the ceded provinces and the relinquishment of the unpaid balance of the indemnity. On the 6th November they made the same proposals substituting for the cession of territory and the relinquishment of the British pecuniary claims permission to purchase in Calcutta arms and ammunition to any extent. At the next meeting on the 10th the Burmese stipulated for a year's delay in the payment of the third and fourth instalments, and on the Envoy agreeing to this they asked for a still further delay of three months which was refused. At last, after numerous meetings, Mr. Crawford, disgusted and worn out, accepted on the 24th November a treaty of little or no value which provided for the free ingress and egress to and from Burma of merchants holding an English pass-port upon their paying the customary dues and for their being unmolested in their mercantile transactions; all British vessels not exceeding fifty tons burden were to be exempt from the payment of tonnage duties and port charges, the object being to endeavour to give rise to a coasting trade; British merchants were to be allowed to go and come and to remove their goods in any ship without let or hindrance; and the Burmese Government was not to confiscate vessels wrecked on their coasts, as had been the custom hitherto, but to afford assistance and receive salvage, all property recovered from the wreck being delivered to the owner. The Burmese negotiators wished to return to the question of delay in the payment of the third and fourth instalments of the indemnity, but the English Envoy replied that, having obtained the treaty, his business was done. It was an unfortunate answer, for when, subsequently, he wished to discuss the question of the captive Cassayers and Assamese and to recover the property of a deceased British merchant he was at once met with his own statement that "his business was done." He was received by the king on the 6th and 7th December and left Ava on the 12th without having received any reply to the Governor-General's letter. Four days before he left Ava the second instalment was paid in Rangoon and Sir A. Campbell at once removed the troops to the Tenasserim provinces leaving Lieutenant Rawlinson in charge of British interests. No difficulty occurred regarding the boundary between Arakan and Burma nor was the subject even mooted, but before he left Ava the English Envoy finally settled, as he thought, the question of the boundary between the Tenasserim provinces and Burmese territory.

It had been clearly understood by the negotiators of the treaty of Yan-da-boo that the Salween river was to mark the frontier but, with their usual chicanery, the Burmese Won-gyee wished to evade the cession of Maulmain: they argued that by article 4 of the treaty they had ceded only Re, Tavoy, Mergui and Tenasserim, whereas Maulmain and the other places east of the Salween formed a portion of the thirty-two districts of Martaban of which no cession was made, but they carefully omitted to notice that the 4th article distinctly stated that the Salween river should be taken as the line of demarcation. Mr. Crawford was firm and the Burmese gave in. Somewhat later another difficulty arose. Immediately opposite Maulmain and dividing the Salween into two channels is Bhee-loo Island, about 107 square miles in extent. This the Burmans claimed alleging that the real mouth was the one between Maulmain and the island, the English contending that the other, between the island and Martaban, was the main channel. The matter was amicably settled: two cocoanuts tied together were set afloat and followed and watched by an English and by a Burman boat; at the Martaban point they were caught by an eddy and carried out to sea by the northern mouth and Bhee-loo-gywon thus became British territory.

On the removal of the British troops the Peguans, who had been freed from the Burman yoke during our occupation of the country, took advantage of the weakened state of the empire and made another attempt to regain their independence. Headed by Moung Tsat, the governor of Than-lyeng (Syriam), they rose on the Burmans and succeeded in enlisting the Kareng on their side. The Burmans were most anxious to induce Mr. Crawford to interfere in their favour whilst the Talaing, on the other hand, feeling confident in their own strength, were equally anxious that we should take no part in the quarrel. In January 1827 they surrounded Rangoon and on the 17th the Burmans made a sortie and put a portion of the Talaing army to flight. On the 23rd January Moung Tsat arrived with troops at Dala, opposite to Rangoon, having posted a strong force in the stockades on the Pan-hlaing creek so as to cut off Rangoon from the capital and being master of the whole of the river below that town. Strong reinforcements, however, were sent from Ava and the Talaing were overcome, Moung Tsat and a large number of followers escaping to the British settlements in Tenasserim. This was the last time that the Peguans made any struggle to regain their ancient freedom.

In March 1827 a Burmese embassy was sent to Calcutta to obtain a further delay in the payment of the third and fourth instalments, to protest against our occupation of a small village near Bassein,

and to object to our officers surveying in Manipur near the Burmese frontier. In the meanwhile the king had given to one Sarkies Manook the monopoly of all export trade and had laid a duty on all British goods brought into Rangoon, the Armenian agreeing to pay the interest due on the overdue instalments should the British government demand it. Lieutenant Rawlinson protested against these infringements of the treaty and they were at once stopped. The Burmese envoys were referred to General Campbell in Maulmain whither they proceeded and, as the final result of the negotiations, gave bonds to pay the third instalment within fifty days from the 4th September 1827 and the fourth within fifty days from the 31st August 1828, but it was not until 1832 that the last instalment was wrung from the Burmese government. The question regarding the surrender of the Manipuri and Assamese prisoners remained to be settled and the Burmese government having promised to deliver up all such as might be pointed out Lieutenant Rawlinson was deputed to Ava to receive them. He arrived on the 22nd February 1828, but all the prisoners had been carefully removed into the interior and he was, therefore, unable to discover and claim a single individual.

Ever since the evacuation of Martaban and the occupation of of Maulmain, exactly opposite to it, which Sir A. Campbell had selected as the site of the military cantonment and station in preference to Amherst some thirty miles lower down, there had been frequent raids by bands of robbers from the Burmese into British territory, separated only by the Salween. No attention was paid to the remonstrances of the British officers and at last, in November 1829, on a more than usually violent outrage occurring a force was sent across the river and the town of Martaban was burnt to the ground, a proceeding which put an effectual stop to these marauding incursions.

It was not until four years after the treaty of Yan-da-boo had been signed that the British government took advantage of the first article of the treaty and deputed a resident to the Court of Ava. In 1830 Major Burney was ordered to proceed to the capital of Burma, to reside there permanently as British resident, to open communications by post with our newly-acquired possesions of Arakan and Tenasserim, to remonstrate against the delay in the payment of the fourth instalment of the indemnity, to protect the British frontiers from Burmese aggressions, to encourage commerce, to watch the Burmese government, to gather all useful information regarding the Court of Ava, to adjust the boundary dispute between Ava and Manipur and, lastly, to ascertain what equivalent the Burmese government would give for the restoration

of the Tenasserim provinces which the Court of Directors had ordered to be given up as unproductive. He arrived in Ava on the 23rd April and was so treated that on the 27th May he applied for boats to quit the capital, the differences having arisen from his refusal to be received by the king on a "beg-pardon day" or to take off his shoes. But the Burmese ministers had the upper hand and would neither see him nor answer his letters, nor would they allow him to have boats. At last, through the intervention of a Mr. Laing, the matter was compromised, the envoy agreeing to take off his shoes and the ministers that he should not be presented on a beg-pardon day. Unpleasant discussions continued for some time; the ministers were very sore at the destruction of Martaban but were informed that if they did not prevent incursions into our territory it was highly probable that other frontier towns would suffer. They also demanded the delivery of the Talaing, Moung Tsat, who had escaped to Maulmain, which was refused, and expressed themselves much annoyed by the decision of the English boundary commissioners in Manipur who, in spite of all the Burmese commissioners' protests, remonstrances and threats had given to Gumbhir Singh the Kubo valley, which Masjit had ceded to them when he was placed upon his brother's throne. Major Burney was received by the king on the 17th June 1830 when the Governor-General's letter was read, and on the whole had no reason to complain of his reception. By the end of July the aspect of affairs had changed and friendly feelings began to be entertained towards the envoy personally. Shortly afterwards the Burmese government gained a distinct and complete diplomatic victory: in awarding the Kubo valley to Manipur the English commissioners had been a good deal guided by an old Shan chronicle which stated that the Raja of Manipur had obtained the valley by cession from the ruler of Mo-goung in 1475 and at a conference in August this chronicle was produced; the Burmese immediately proved, and proved satisfactorily, that thirty-three years before the reputed cession Mo-goung had become tributary to Ava. Towards the end of this month differences between the British envoy and the Burmese Court again arose. The Won-gyee were surprised, or pretended to be, and annoyed when they found that Tenasserim would not be restored on the payment of the fourth instalment, and endeavoured to re-open the question of the boundary between those provinces and Martaban and the king openly expressed his anger at being obliged to submit his claim to the Kubo valley to the Governor-General. Thanks to Major Burney's conciliatory manners all blew over and in September the Won-gyee were as friendly as ever. Shortly after-

wards the Envoy succeeded in getting the rate of import duty on goods brought from Arakan permanently fixed at ten per cent. for the king and one half per cent. for the local officers and in establishing a land post from Ava to Calcutta through that province. During the ensuing two years numerous and continual conferences took place in which the Burmese officers shewed that, like the Bourbons, they never forgot and they never learnt: it was with the greatest difficulty that Major Burney succeeded in getting them to pay the fourth instalment and they continually recurred to the boundary between Martaban and Maulmain claiming Bhee-loo-gywon which Major Burney positively refused to give up. They also made an attempt to obtain the withdrawal of the mission and the substitution of an embassy every ten years. The most important concessions which he wrung from the Court were that the reply to the Governor-General's letter was from the king and was properly addressed, the extradition of fourteen convicts who had escaped from Arakan, and a promise that every case of extradition should be considered on its own merits.

The Burmese government had despatched an embassy to Calcutta thinking that they had a better chance of gaining their points there than from the British envoy in Mandalay: the mission was absent three years following Lord William Bentinck to the Upper Provinces and being more engaged in visiting the Booddhist remains at Booddha Gaya and elsewhere than in diplomatic intercourse.

On the 22nd April 1832 Major Burney was driven by ill-health to quit Ava and left Mr. Blundell in charge of the mission; he was relieved by Captain Macfarquhar in October of the same year. This officer was compelled by sickness to leave in September 1833 and in the November following Major Burney returned.

For some years the king had been subject to fits of melancholy and in 1831 he became insane; he withdrew entirely from the management of public affairs which were conducted by a counsel consisting of prince Tharrawaddy, the king's brother, Meng-tha-gyee his brother-in-law, formerly fishmonger, who possessed extraordinary influence over him, and two others. Tharrawaddy, disgusted with Meng-tha-gyee, soon withdrew and on Major Burney's return he found the empire ruled by Meng-tha-gyee and the queen, his sister, and every office and governorship filled with their creatures. He came to the Court with what to them was exceedingly pleasant news, that the Governor-General had determined to restore to them the Kubo valley, and Captains Grant and Pemberton and Lieutenant McLeod proceeded to Keng-dat and marked out the new boundary line. The queen and her brother continued to

rule the kingdom, their grasping dispositions and venality making them hated by all. The queen was clever, avaricious and intriguing and had succeeded in inducing Hpa-gyee-daw to repudiate his first queen and to elevate her to the position thus rendered vacant. Her brother hid a grossly avaricious, cunning and intriguing disposition under the garb of meekness and religion. Prince Tharrawaddy, who had been driven from all affairs of state by the conduct of these two, was clever, open-hearted and liberal, but cruel and vindictive, qualities which did not appear till later.

For six years he, Tharrawaddy, remained brooding over his exclusion from all power in the state, indignant at the influence exercised over his brother, for whom he had a strong affection, by the "sorceress" (as the queen was called by the royal family) and smarting under the knowledge that it was mainly owing to the counsels of Meng-tha-gyee, formerly fishmonger, in direct opposition to his own, that the war with the British had been continued and the provinces of Arakan and Tenasserim lost to his family for ever. Slowly but surely a cloud had arisen between the two brothers whose intercourse had formerly been so unrestrained and Tharrawaddy felt that, much as the king still loved him, he must take measures to secure his personal safety. Fond of boat-racing he employed this amusement as an excuse for assembling round him a strong body-guard and he managed to collect secretly some 8,000 muskets. In 1837 matters came to a crisis and on the ministers, prompted by Meng-tha-gyee, formerly fishmonger, sending a party to arrest one of his followers in his own palace his spirit rose in wrath, he violently repelled the ministerial emissaries and flying to Tsit-gaing and thence to Moot-tsho-bho he raised the standard of revolt more against the "sorceress" and Meng-tha-gyee, formerly fishmonger, than against his brother from whom he had never received ought but kindness.

CHAPTER XI.

HISTORY.

FROM THE REBELLION OF PRINCE THARRAWADDY (1837), TO THE CLOSE OF THE SECOND ANGLO-BURMESE WAR (1852).

On the news of the outbreak of the rebellion reaching the capital the Court was in consternation and appeal after appeal was made to Major Burney to interfere for its protection. He visited Tharrawaddy at Moot-tsho-bho and with much difficulty obtained from him a promise that the city should not be sacked and that, if the ministers would surrender, no executions should take place. By April all resistance had been overcome but the prince, troubled by scruples of conscience, hesitated to usurp his brother's throne and called himself king of Moot-tsho-bho. One month's unlimited power seems to have brought out his true character for in May he declared that his brother had abdicated in his favour and he assumed the royal style and dignity. Meng-tha-gyee, formerly fishmonger, and his creatures the ministers were seized and confined in the common gaol, depending for their subsistance on the charity of the British envoy, whilst his daughters were obliged to beg through the streets for the means of procuring a boat to convey their father, a prisoner, whithersoever Tharrawaddy chose to drag him.

At the first interviews which Major Burney had with the new king all went well but in June the latter refused most positively and unconditionally to acknowledge the treaty of Yan-da-boo or to treat with the Governor-General, who must, he declared, correspond with the viceroy of Rangoon his equal in rank and position: any embassy that he, the king, might send would be to the king of England and not to a Governor-General hired at a monthly salary. He said that *he* had never been conquered and he declined to be bound by any treaties made with his brother, he was not anxious for war, he added, but he was quite prepared for it and would certainly not sue for peace. He refused to receive Major Burney as envoy but was quite ready to talk to him as a private individual and he openly remarked that if Mr. Crawford or anyone like him was sent again there would be war at once. It seemed to

BENGAL SECRETARIA

Major Burney that he could do no possible good by remaining and he accordingly left with the whole mission, a step of which the Governor-General, Lord Auckland, strongly disapproved.

Tharrawaddy removed to Kyouk-myoung which he intended to make the seat of government, and, notwithstanding his promise to Major Burney, he vowed to make Ava, in which he had passed so many unhappy years, a heap of ruins, and left in charge of it one Moung Thoung Bo, the Pa-kyee Won, a notorious robber; the Myo-won then privately advised the foreign merchants to leave the town, acknowledging his inability to protect them or to make restitution for any losses which they might suffer.

After remaining a few months at Kyouk-myoung Tharrawaddy removed to Amarapoora and established his capital there, and shortly afterwards put to death the Tsa-kya-meng, the late king's son, a prince of about twenty-four years of age, of weak intellect but proud and violent, who was accused of treason against the usurper The late king was placed in honourable seclusion and Tharrawaddy, remembering his promise to Major Burney or for some other occult reason, spared the lives of his bitter enemies the "sorceress" and Meng-tha-gyee, formerly fishmonger, contenting himself with retaining them in close confinement.

In 1838 the Government of India sent Colonel Benson as Resident with costly presents for the king but Tharrawaddy in speaking to Major Burney had spoken advisedly and not in the heat of passion and was determined that he would not receive an envoy from the Governor-General and would not be bound by the treaties concluded with his brother. Colonel Benson arrived in Rangoon in July but it was not until the end of August that he was able to get boats to convey himself and the Assistant Resident, Captain McLeod, to Amarapoora. He was treated with much incivility on the journey up the Irrawaddy and at Prome received an intimation that the best thing he could do was to remain where he was. On his arrival at Amarapoora he was put on a sandbank which was under water during the rains, all intercourse with the town was strictly prohibited, and on a representation being made to the ministers that neither dealers nor boatmen, labourers nor workmen would come to the Residency they replied that such trifling matters should not be brought before them. The king positively declined to receive the Resident or to acknowledge his right to be there under the treaty of Yan-da-boo though he had no objection to his remaining as a private individual. After undergoing a series of wantonly-inflicted annoyances, Colonel Benson at the end of the year quitted the capital leaving Captain McLeod in charge of the Residency.

Before Colonel Benson left Amarapoora a revolt broke out in the lower provinces, headed by a man who pretended to be the Tsa-kya-meng who had been put to death in 1837: it was easily suppressed but with atrocious cruelty, in one case forty men, women and children being penned in a bamboo house which was then set on fire.

Captain McLeod remained until 1840 but was never publicly received nor allowed to communicate with the town, and as he was not permitted to remove the Residency from the sandbank which was under water he withdrew the mission in January of that year. No one was sent to replace him and thus the king carried out the intention which he had so openly avowed of ignoring everything that had occurred since the final defeat of the Burmese troops at the close of the war.

Early in 1840 a rebellion broke out in the Shan States which was put down but Tharrawaddy took advantage of it to get rid of the "sorceress" and Meng-tha-gyee, formerly fishmonger, and a number of their followers who, with them, had been kept in confinement. The queen was trodden to death by elephants and the other executions were, if possible, still more barbarous and cruel.

In 1841 great preparations were made and king Tharrawaddy with a large retinue and a considerable body of troops came down to Rangoon. As the British government was fully informed of the king's views and ideas, of his refusal to be bound by the treaty of Yan-da-boo, of his declared intention to consider everything that had occurred since the final commencement of the negotiations for peace as null and void as far as he and his government were concerned, and of his strong desire to recover the lost territory, some alarm was felt and the troops in Arakan and Tenasserim were reinforced. But Tharrawaddy had not forgotten Sir Archibald Campbell's advance, in the fruitless opposition to which he had taken a part, and was too clear-sighted to attempt to measure his strength with the English. From the time of the first repulse of the Burmese forces at Rangoon he had strongly urged upon his brother's government the advisability of making peace and had suffered some obloquy in consequence, and when the Maha Bandoo-la was proceeding to Rangoon Tharrawaddy warned him to be careful for he had "very rough people to deal with and very "different from those on the (Burmese) western frontier". Anxious as he was to retrieve the disasters of the Burmese arms he knew well that it was impossible, and no attack from him was to be feared as long as the British government showed itself prepared and ready. After remaining in Rangoon some time and repairing

the Shwe Dagon pagoda, for which he caused a great bell to be cast, he returned to the capital.

Very soon after his accession he had shewn symptoms of insanity and he gradually became worse, committtng horrible cruelties in fits of ungovernable fury. One of his amusements was to make anyone who happened to be present kneel down and then with his sword he would "score a chess-board with gashes on "the unfortunate's bare back." Shortly after his return from Rangoon he left his capital and went to live in a palace which he had built on the banks of the Ma-de stream, where Mandalay now stands. In 1845 he became so outrageous that his son the Prince of Prome, put him under restraint, but Tharrawaddy shortly afterwards recovering his liberty the Prince escaped to the Shan States. A very short time afterwards another of his sons the Taroop-maw Prince, put him under restraint again, and he so remained until his death in 1846, his dethroned brother Hpa-gyee-daw having preceded him to the grave the year before. As soon as Tharrawaddy was confined his eldest son the Prince of Pagan assumed charge of the government but did not assume the royal state till his father's death. Before this occurred the Prince of Prome was brought in a prisoner from the Shan States and being accused, together with one of Tharrawaddy's queens, of conspiring to raise himself to the throne they were both executed with all his children and all her relatives except her daughter by king Tharrawaddy. On the death of his father the Pagan Prince was at once proclaimed king and he inaugurated his reign by putting to death his brother the Prince of Taroop-maw and all his household to the number of some hundred persons.

In person the new king was like his father but without his manners, intelligence or bearing: a careful observer described him as "destitute of genius, deficient in intellect, deficient in general "knowledge, passionately fond of the lowest and most grovelling "pursuits, as cock-fighting, ram-baiting, and sports of that kind; "he allowed the country to be controlled by persons who were "singularly bereft of all right principles." Though vicious and cruel yet he never committed an atrocity without an object but managed on every occasion so to arrange that his exchequer should be replenished by his victim's death. His abettors and counsellors were two Mussulmans, who held appointments in the capital, to whom he allowed almost supreme power, for which they paid with the money wrung from the people: their authority lasted two years during which 6,000 individuals are supposed to have suffered death, one half by public executions and the other by private murder. At last the discontent was so great that the king became

alarmed and sacrificed his tools to save himself. The two, called by the Burmese Moung Bhe and Moung Bhien, were beheaded after undergoing three days' horrible torture.

Whilst these scenes were being enacted in Amarapoora the various governors and viceroys of provinces were following their master's example. King Tharrawaddy had, throughout his reign, treated our engagements with the Burmese government as waste paper, and, feeling confident of support from their own government, the viceroys of Pegu had, ever since 1837, re-commenced those exactions from traders which had so often provoked remonstrances from the British government. For several years complaint after complaint was sent to the Government of India of which, as there was no Resident at the capital or accredited British agent at Rangoon who might remonstrate with the authorities, no notice was taken. At last, in 1851, two more than usually outrageous cases of extortion and intimidation occurred and on their being reported to Lord Dalhousie he acted with his usual vigour. The governor of Rangoon at this time was one Moung Oot who had been appointed in 1846 by the reigning king soon after he ascended the throne, and who was noted for his cruelties and exactions, the subjects of his master being as great if not greater sufferers than the foreign residents in, and masters of ships visiting, the port. In July Mr. Sheppard of the barque Monarch, a British subject, the master of a British ship, was carried by the Burman police before Moung Oot, kept in confinement for a crime which he had not committed —the murder of his pilot—and not liberated till security was given for him by others, after which he was fined four hundred and ten rupees. He was a second time arrested by the governor, on an equally false charge of embezzlement, and though acquitted by a court of arbitration assembled by the governor himself was next day re-arrested and a second time arraigned on the same charge and made to pay a further fine of five hundred rupees. The crew of his ship were imprisoned and one of them beaten and otherwise ill-used and from all money was extorted as fees, fines or dues. Finally the port-clearance of the Monarch was refused until a further sum of fifty rupees was paid. Mr. Sheppard complained to the British authorities in Tenasserim and submitted a claim against the Burmese government of ten thousand rupees as compensation for demurrage, for money extorted, and for the insults and ill-usage to which he and his crew had been subjected. In August 1851, the barque Champion, Lewis master, arrived at Rangoon. A frivolous charge was brought against Mr. Lewis by two Bengal coolies who had secreted themselves on board his vessel and he was made to pay one hundred rupees. Seven

of his crew deserted and before he could get them back he had to pay two hundred and fifty rupees and then only four of them were sent on board. The next proceeding of Moung Oot was to accuse him of murder, to promise to dismiss the case if Mr. Lewis would give him two hundred rupees, and on his refusal to threaten to send him in chains to Amarapoora, he even had the irons brought into Court; owing to Mr. Lewis' firmness he was that day released but was re-arrested on the following, re-tried on the same charge and finally obliged to pay two hundred and eighty rupees. A day or two afterwards one of his petty officers was seized on a charge of embezzlement and his release and the port-clearance refused until two hundred rupees were paid. Mr. Lewis proceeded to Calcutta and laid his complaint before the Government, making a claim against the Burmese authorities of nine thousand two hundred rupees.

Lord Dalhousie, who was in the north, was immediately communicated with and under his instructions Commodore Lambert, who happened to be in Calcutta, was deputed to Rangoon with H. M. S. Fox, carrying his broad pennant, Serpent and Hermes and the steam vessels Tenasserim and Proserpine of the H. E. I. C's. Bengal Marine, the last joining from Maulmain where she was then stationed; soon afterwards the steamer Phlegethon of the Bengal Marine was added to the squadron. The instructions given to the Commodore were to address a note to the governor of Rangoon briefly setting forth the facts of each case, pointing out that they constituted a very grave infraction of the existing treaty, informing him that the British government would not permit the terms of that treaty to be disregarded, the liberty of its subjects to be violated, or their interests injured by arbitrary acts of oppression and extortion, and finally demanding pecuniary compensation for Messrs. Sheppard and Lewis.* Should the governor refuse to comply with the demand the Commodore was to forward to the government at Amarapoora a letter from the President in Council and await a reply, but he was specially instructed that no act of hostility was to be committed even though the reply of the governor should be unfavourable, nor until definite instructions regarding such hostilities were issued by the Government of India.

The letter from the President in Council to the king of Burma was dated 17th November 1851, and after alluding to the fact of numerous complaints having been received regarding the conduct of Moung Oot desired that compensation should be given, and, in consideration of the refusal of the governor to afford redress, on

* The Government of India reduced Mr. Sheppard's claim from Rs. 10,000 to Rs. 8,400 or Rs. 8,500, and Mr. Lewis' from Rs. 9,200 to Rs. 5,500 or Rs. 5,600.

which, only, it was anticipated that the letter would be sent, further required that this officer should be removed "from the office "he has unworthily filled, in which his conduct has tended to sow "dissension between the States, and to break down the provisions "of the Treaty which it is doubtless His Majesty's wish most fully "to uphold."* The letter concluded by stating that "if these "just expectations should be disappointed the Government of "India will feel itself called upon to take such immediate measures "as shall enforce the rights it possesses by virtue of existing "treaties, shall effectually protect the interests of British subjects "and shall fully vindicate its own honour and power."* On the squadron arriving in the Rangoon river it was met by a Mr. Spears, an English resident in Rangoon, who had been sent down by the governor to know why an armed force had made its appearance in Burmese waters, the reply to which was that the Commodore had a communication to make from the Governor-General of India which should be sent to the governor on any day which he might fix after the arrival of the men-of-war at Rangoon. On Mr. Spears' return Moung Oot issued orders that no European was to communicate with the squadron on pain of death, a threat which his previous cruelties led them to expect that he would certainly carry out. Moung Oot fixed a day for the reception of the Commodore's communication and arranged that, as his own house was some two miles from the bank of the river, he would attend at the Custom-house to receive it. Before the day of meeting arrived the English residents forwarded to Commodore Lambert a long list of grievances, and the night before the day fixed by the governor for the receipt of the communication from the Indian government he, without sending any intimation to the Commodore, changed the place of meeting to his own house, whilst it was ascertained that he had mooted the question of seizing as hostages the officers who might land and threatening to put them to death if the squadron did not at once leave the Rangoon river. These occurrences at Rangoon induced the Commodore to withhold his demand on the governor and to forward at once the letter to the king of Ava with one from himself to the ministers, calling for a reply in thirty-five days; this he reported to the Government of India.

Within the time fixed replies were received, some frivolous excuses were made to explain why the Burmese government had not examined into the complaints against the governor of Rangoon, his removal and the appointment of a successor with full powers was announced, a promise was made to enquire into the cases of

* Papers presented to both Houses of Parliament by command of Her Majesty, 4th June 1852, p. 22.

Messrs. Sheppard and Lewis, and finally exception was taken to the strong expressions in the last paragraph of the letter from the President in Council.

Both Commodore Lambert and the Governor-General now hoped that all differences would be amicably arranged, but this was by no means the intention of the Burmese government. The arrogance of the Court had again reached all its former height and the king determined on once more measuring his strength with that of the British power in India. The new governor was one Moung Hmoon and he brought with him thirty thousand men, whilst at the same time twenty thousand men under Moung Gnyo and thirty thousand under Moung Bwa were sent to the Bassein and Martaban districts respectively. In the meanwhile the Government of India had received Commodore Lambert's despatch informing them of his having sent on the letter to the king of Burma and had authorized him to blockade the Burmese rivers if the king's reply was unfavourable. Lord Dalhousie was not to be played with. On the 3rd January 1852 the new governor arrived but no intimation of the fact was communicated to the squadron whilst information was received that the old governor had left with all marks of honour and that the new governor fully endorsed the policy of his predecessor and had served a written notice on the principal British subjects in the town threatening them with death if they held any communication with the vessels in the river. At last the Commodore, tired of waiting, directed Commander Fishbourne R. N., and Captain Latter B. N. I. to take on shore to the governor a letter containing the demands which he had been directed to make, which had now been increased by one made under Article VII. of the treaty of Yan-da-boo *viz.*, for the honourable reception of a British Agent at Rangoon with a guard of fifty men. Nothing could exceed the insolence with which this deputation was met, except the effrontery of the excuse afterwards offered. Mr. Edwards, a clerk of Captain Latter, was sent to inform the governor that the deputation was about to land, and although thus warned, although the persons of of the officers and the object of their mission was known, although they were in full uniform, they were not merely denied admittance to the presence of the governor on the plea that he was asleep, a plea ascertained to be false from his own messages brought to them at the time, but they were not permitted to enter within the door. No officer was deputed to them to furnish any explanation; one official after another passed them without notice, while they were standing in the public court in the heat of the sun, and when they sought shelter from its rays they were bidden to go under a shed provided for the lowest classes of the people when attending

the Courts. No further notice was taken of their presence and the officers, after long delay, were compelled to retire from the door without delivering the Commodore's letter. No apology was ever offered but the governor sent on board a letter to the Secretary to the Government of India accusing Commander Fishbourne, Captain Latter and the other officers who accompanied them of having been in a state of intoxication and of using violent and abusive language. Commodore Lambert at once declared the blockade of the rivers and in retaliation for the insults offered to the British government through the officers whom he had deputed to the governor of Rangoon seized a royal ship which happened to be there and proceeded down the river. On arriving opposite the great stockade, which was found full of men and the banks beneath which were lined with a large number of war-boats armed with guns, the Fox anchored, waiting for the Hermes with the king's ship in tow. She passed down at about 9 A.M., and the Burman commander of the great stockade, acting on orders which he had received from the governor the purport of which had been communicated to the Commodore, on seeing that the royal ship was being taken away opened fire on the Fox, this was returned with shot and shell, the Burmese battery silenced, and the war-boats in shore destroyed by the Phlegethon and the boats of the Fox. In the meanwhile a stockade on the opposite bank fired upon the Hermes but her heavy guns and a few rockets soon put an end to the Burmese firing. Before leaving Rangoon the Commodore had given all British subjects an opportunity of embarking of which the majority availed themselves and when he left he took with him such British merchant ships as desired his protection; these preceded the Fox and Hermes and were allowed to drop down the river unmolested. The Serpent, Commander Luard, was sent to carry out the blockade of the Bassein river and Commodore Lambert himself proceeded to Calcutta to confer with the Government. The unsatisfactory aspect which affairs had now assumed rendered it advisable that the troops in Tenasserim and Arakan should be reinforced: a wing of the 18th Royal Irish and a company of European Artillery were sent to Maulmain in the steamers Tenasserim and Proserpine, and a little later a regiment of Bengal Native Infantry and some Artillery embarked on board the P. and O. Company's steamer Precursor and were conveyed to Kyouk-hpyoo so as to be available for any duty on which it might become necessary to employ them. Lord Dalhousie was then at Benares and on receiving the despatches made another attempt to avert war and in a despatch to the Secret Committee of the Court of Directors expressed his belief that there were still grounds to hope for a peaceable adjustment.

The President in Council again addressed the Burman government briefly recapitulating the occurrences in Rangoon since the arrival of the new governor and requiring that he should express in writing to the Government of India his deep regret at the insults offered to Commander Fishbourne and the officers who accompanied him, should at once pay the compensation claimed and should consent to receive with all honour a British Agent at Rangoon, adding that if these mild and just demands were not complied with the British government would exact for itself the reparation due to it. This letter was conveyed to Rangoon by the Commodore in the Fox in tow of the Fire Queen, which had joined the naval force, carrying a flag of truce but on the vessels passing the lower stockade the Burmese batteries opened fire, they were soon silenced, however, by the guns of the Fox.

The Burmese government was anxious to gain time and before the Commodore returned from Calcutta made an endeavour to open a communication with the Government of India through the governor of Martaban and Colonel Bogle the Commissioner of Tenasserim, but, as if to shew their determination not to yield, their communications were made in the name of the obnoxious governor of Rangoon and contained bitter complaints of the Commodore's conduct, laying on him all the blame for the recent events and declining to carry on their correspondence with the government through an officer who misrepresented everything and whose only object appeared to be to plunge the two countries into war. The truth was that the governor of Rangoon, who never lost an opportunity of repeating his insulting accusations against Commander Fishbourne and the rest of the deputation, was not yet prepared to resist any attack and the knowledge that reinforcements had already been sent to Maulmain and Kyouk-hpyoo produced a sensible alteration in the tone and manner of the authorities as shewn by the conduct of those of Martaban who were the only ones who now came into personal contact with British officers. The reply to the letter from the President in Council was sent to Commodore Lambert in February; not only was every concession demanded evasively refused but the British officers were accused of falsehood in their assertions regarding their treatment at the governor's house. It must not be forgotten, however, that in the communication from the President in Council the Burmese officers were, in so many words, accused of "false-"hood and calumny". On the receipt of this letter Lord Dalhousie came down to the Presidency and determined on despatching a force to Rangoon but at the same time on giving the king one more opportunity of avoiding war and on the 18th February the

Governor-General addressed his last communication to the arrogant and ignorant Court at Amarapoora. The whole of the occurrences at Rangoon were recapitulated and His Majesty was informed that all concessions having been practically refused by his viceroy in Rangoon the Government of India had resolved to enforce its rights and to vindicate its power, for which purpose large preparations had been at once commenced and were then in progress. "It is still within your Majesty's power" the letter continued "to avert from your kingdom the disasters of war; but this "can only now be done by a prompt disavowal of the acts of your "Majesty's servant at Rangoon, and by a full compliance with the "several demands which are hereinafter enumerated:—

"Your Majesty, disavowing the acts of the present governor "of Rangoon, shall, by the hands of your ministers, express regret "that Captain Fishbourne and the British officers who accom-"panied him were exposed to insult at the hands of your servants "at Rangoon on the 6th January last.

"2. In satisfaction of the claims of the two Captains who "suffered exactions from the late governor of Rangoon; in com-"pensation for loss of property which British merchants may have "suffered in the burning of that city by the acts of the present "governor; and in consideration of the expenses of preparation "for war, your Majesty will agree to pay, and will pay at once, "one million rupees to the Government of India.

"3. Your Majesty will direct that an accredited Agent, to be "appointed in conformity with the VII. article of the treaty of "Yandaboo and to reside at Rangoon, shall be received by your "Majesty's servants there; and shall, at all times, be treated with "the respect due to the representative of the British government.

"4. Your majesty will direct the removal of the present "governor of Rangoon, whose conduct renders it impossible that "the British government should consent to any official intercourse "with him.

"If, without further delay, negotiation or correspondence, "these conditions shall be consented to and shall be fulfilled on "or before the 1st day of April next hostile operations shall be "stayed, peace between the States shall be renewed, and the king's "ship shall be restored.

"But if, untaught by former experience, forgetful of the "irresistible power of the British arms in India and heedless of "the many additional proofs that have been given of its might..... "since last the Burman rulers vainly attempted to resist the "British troops in war the king of Ava shall unwisely refuse the "just and lenient conditions which are now set before him the

"British government will have no alternative but immediate "war."

A letter couched in such haughty terms had never before been received by any king of Burma. Up to this moment the Burmese had not believed that the English would really go to war and had made no general preparations, contenting themselves with slightly strengthening the force at Rangoon and erecting stockades to resist any attempt made by the Commodore to exact reparation; they thought that the utmost which we should do would be to burn down Rangoon, and perhaps Martaban and Bassein, and as in that case the unfortunate inhabitants alone would suffer whilst the rulers would escape scot free they did not consider it necessary to take any extended measures to avert such a proceeding on the Commodore's part. King Hpagyeedaw and his ministers had been assured by Dr. Price, the American missionary and by Mr. Sarkies, an Armenian, that the first war had nearly ruined the British government, and that its financial difficulties and embarrassments were so great that it would submit to anything rather than engage in another conflict with Burma. When Lord Dalhousie's letter reached the Court, about the middle of March, and when it found that it had only fifteen days in which to discuss the question of fighting or acceding to terms, most severe in themselves, dictated in a letter from a Governor-General to his Burmese Majesty in person and in language more peremptory than any that had ever before been employed by the British government in its communications with it and to forward an answer to Rangoon, misled by those who gave it information regarding the British power in India and strong in its ignorance, of its own subjects and in its overweening arrogance it at once commenced preparations for war. Lord Dalhousie's arrangements were almost completed before the Court of Burma received his letter, and on the 5th April the first blow was struck and was followed up by attack after attack without allowing the king of Ava time to collect an army, whilst his Shan subjects in the north positively refused to join his standard and his Talaing and even Burmese subjects in the south, on the withdrawal of the gangs of robbers who constituted the only troops which the miserable cock-fighting, gambling, debauched king and his worthless ministers and viceroys had been able to assemble, everywhere sided with the invading force.

The Governor-General, warned by the first war, was determined not to wait till the 1st April for the king's answer before he commenced to assemble troops and transports, and after the despatch of his letter immediate steps were taken for ensuring that

the force to be employed against Burma, in case of a refusal of the king to accede to the demands made, should be on the field of action by the 1st April so as to be in a position to commence hostilities, if unfortunately they should be necessary, immediately after that date. By the 23rd March some of the troops from Bengal had left and the rest were ready to embark. General Godwin, C.B., who had served in the first war, had been nominated to the command and the staff appointments had been filled up. The only check was the refusal of the 38th B. N. I. to volunteer for Burma or to proceed to Arakan by sea.

The expedition consisted of the 18th Royal Irish, 51st K. O. L. I. and 80th Staffordshire Volunteers, five companies of European Artillery, three regiments of native infantry, two companies of Sappers and Miners and seventy gun lascars, conveyed in the transports Futteh Allum, Futil Rosack, Tubal Cain, Bengal, Lahore, Favourite and Monarch, with a fleet under Admiral Austen consisting of H. M. S. Fox, 40, Commodore Lambert; Rattler, 11, Commander Mellersh, flagship; Hermes, 6, Commander Fishbourne; Salamander, 6, Commander Ellman; Serpent, 16, Commander Luard; and a gun-boat with one gun: the E. I. Co's. steamers Feroze, 7, Captain Lynch; Mozuffer, 7, Captain Hewett; Zenobia, 6, Commander Ball; Sesostris, 4, Commander Campbell; Medusa, 5, Lieutenant Fraser; Berenice, 1, Lieutenant Nisbett; and the Bengal Marine steamers Tenasserim, 6, Captain Dicey; Pluto, 7, Captain Burbank; Phlegethon, 6, Captain Neblett; Proserpine, 6, Captain Brooking; Enterprize, 2, Captain Fryer; Fire Queen, 2, Captain Boon; and Mahanuddee, 4, in charge of Lieutenant Rice R. N.

General Godwin was invested with full diplomatic authority and was instructed to ascertain by a flag of truce before commencing hostilities whether any reply had been received in Rangoon to Lord Dalhousie's last letter to the king of Burma, and if a reply acceding to the demands made had been received and if the local officers at once proceeded to give effect to such concessions to stay hostilities but in any other case to proceed to action and to accept as terms, if the Burmese should then ask for peace, the payment of one million five hundred thousand rupees, the payment of three hundred thousand in addition for every month which should elapse after the 1st May until full payment was made, and the cession to the British until such payments were made of every place captured by them.

The Bengal portion of the force arrived off the mouth of the Rangoon river on the 2nd April, the Madras portion being some-

what delayed. A flag of truce was sent up the river in the Proserpine but she was fired upon and obliged to return and thus, notwithstanding all Lord Dalhousie's endeavours, the British were for a second time dragged into a war with the Burmese empire. The Government of India had the satisfaction of receiving, in September 1852, a despatch from the Secret Committee of the Court of Directors conveying to them the full approval of the English Government of everything that it had done and which was so worded as to shew that the Court of Directors was still more warlike in its feelings than the Council of the Governor-General.

Hostilities commenced by the capture of Martaban. General Godwin, finding that the Madras division was late and anxious to lose no time, for the season was well advanced, proceeded to Maulmain with one thousand four hundred men—a wing of the 18th Royal Irish, a wing of the 80th Regt. and a wing of the 26th M. N. I., with detachments of European Artillery and Sappers and Miners—in H. M. S. Hermes, Rattler and Salamander and the Bengal Marine steamer Proserpine, and accompanied by Admiral Austen. The assault took place on the morning of the 5th April. The Hermes grounded too far off to be of much use and the Salamander, owing to her draught of water, was unable to get as close as the Admiral wished but her shelling was most effective; the Rattler and the Proserpine took up admirable positions and by about half-past seven in the morning the troops, under the command of Colonel Reignolds, were landed and commenced the attack, and, led by Captain Gillespie of the 18th Royal Irish who was first on the wall, were in possession of the whole position by 8 A.M. with a loss of seven European rank and file and and one havildar wounded. Leaving in garrison the 26th M. N. I. and one company of European Artillery, who could be relieved from Maulmain as might be found necessary, the General returned with the remainder of the troops to the Rangoon river to find that the Madras division had arrived. There was now no reason for delaying the advance on Rangoon and accordingly on the 10th the fleet and troops proceeded up the river and anchored below the Hastings shoal that evening. On the morning of the 11th the shoal was crossed by each ship as the water served and on the Feroze, Mozuffer and Sesostris taking up their positions fire was opened upon them from both sides of the river; this was returned with shot and shell and a magazine in a stockade mounted with well-planted eighteen-pounders was blown up and the stockade destroyed. A company of the 18th Royal Irish and a party of seamen and marines landed on the

Dala side under fire of the ships guns and stormed three stockades from which they drove the enemy and which they burnt before retiring. The Serpent and Phlegethon then passed up the river and anchored opposite Kyee-myeng-daing whilst the Rattler and Tenasserim succeeded in silencing three more stockades.

Everything was now ready for the landing of the troops and this commenced at 4 A.M. on the 12th April. By 7 A.M. the 5th K. O. L. I., 18th Royal Irish and 40th B. N. I. and part of the Artillery were landed and commenced the advance, the Bengal guns, covered by four companies of the 51st, leading. They had not proceeded far when, on reaching some rising ground on the right, heavy guns opened on them and to the surprise of all who had served in the first war strong parties of skirmishers appeared on the flanks of the advancing column. A battery of four guns at once opened on the stockade on the right and a storming party, consisting of four companies of the 51st K. O. L. I. under Lieutenant-Colonel St. Maur and the Sappers under Major Fraser, was rapidly formed and advancing on the stockade under a heavy fire carried it at the point of the bayonet. It was now 11 o'clock, the troops had been under arms since 4 A. M., and the heat was terrific. Major Oakes died of sunstroke whilst with his battery and Major Griffith of the Madras army was struck down when conveying an order and died on the road; Lieutenant-Colonel Foord was obliged to quit the field and Brigadier Warren and Lieutenant-Colonel St. Maur suffered severely. Under these circumstances the General halted, holding his position though much teazed by parties of the enemy until next morning, when he was informed that the battery of heavy guns could not be landed till midday and that the Commissariat were unable to issue rations in time for an advance before the heat of the day commenced. The Commissariat department having thus failed the General was obliged to wait till the morning of the 14th. The Burmese had made every preparation to receive the attack on the south face, to which a direct road led from the river, and had mounted 100 pieces of cannon on the defences, but General Godwin, in order to turn the position, moved towards the east with four guns protected by two companies of the 80th followed by the rest of the wing of that corps with two more guns and the 18th Royal Irish and the 40th B. N. I. being in advance; the 51st K. O. L. I. and the 35th M. N. I. were in reserve and the 9th M. N. I. kept open the communication with the shipping. With some difficulty and under a heavy fire the heavy guns were, with the assistance of one hundred and twenty men from the naval brigade, brought into position, but in the meanwhile the enemy had got the range and were doing much damage to the Staffordshires and Royal Irish, who,

owing to the nature of the ground, were in close order, whilst at the same time it took the fire of five hundred men to keep down that of their skirmishers. By 11 A.M. the fire of the heavy battery had cleared the eastern entrance to the Pagoda and a storming party was formed of a wing of the 80th under Major Lockhart, two companies of the Royal Irish under Lieutenant Hewitt, and two companies of the 40th B. N. I. under Lieutenant White, the whole being commanded by Colonel Coote of the Royal Irish. The troops with great steadiness crossed an open space of some eight hundred yards under a heavy fire from which they suffered severely and on arriving at the foot of the steps leading up to the Pagoda made a rush which for the second time in thirty years placed the great Shwe Dagon in possession of the British. The enemy fled in confusion by the north and west entrances and those who escaped by the latter were met by the fire from the shipping which did much execution. The governor of Rangoon had left the Pagoda on the 13th and when it fell the whole of the neighbouring country was abandoned by the enemy who destroyed a strong stockade which they had constructed at Kyee-myeng-daing.

The loss during the three days fighting was comparatively heavy; three officers killed (one of whom was returned as mortally wounded) and thirteen wounded, and fifteen warrant and non-commissioned officers and rank and file killed and one hundred and fourteen wounded. The loss on board the men-of-war was two men killed and one officer and twenty-three men wounded.

The whole Burmese army retired northwards and the people, relieved from oppression, readily returned to their houses, whilst the inhabitants of the surrounding villages brought in vegetables and various other articles for sale, and many offered themselves for employment as coolies. Forewarned by the occurrences of the previous war and the fatal results of the occupation of Rangoon by the troops under Sir A. Campbell Lord Dalhousie had taken every precaution to prevent any outbreak of disease. The proximity of Maulmain, now a large and flourishing town, enabled the Governor-General to take early and effective measures for the health and comfort of the troops. The resident merchants and shop-keepers at once procured every kind of supply likely to be needed whilst before the arrival of the expedition the civil officers had collected two thousand head of slaughter cattle, and so continued and steady were their exertions that in August, when heavy calls had been made upon them, the number in stock had been increased to three thousand head. But the food of the troops was not the only point to which Lord Dalhousie directed his personal attention; sixty wooden barracks in frames, with thatching, each capable of accommodating

a company were prepared in Maulmain and sent over to Rangoon, and these, together with the numerous monasteries and rest-houses in the town and near the great Pagoda, afforded full and sufficient shelter for the force, whilst advantage was taken of the salubrious climate of Amherst to establish there hospitals for those of the sick and wounded whose removal from Rangoon was considered advisable, and for whose reception ranges of buildings had been prepared under Lord Dalhousie's orders by the Commissioner, Colonel Bogle. The result of these precautions was that while the troops necessarily suffered much from the first three days exposure, from the terrible power of the sun and from the great alternations of temperature during the night and day, the effects of the climate were but temporary and the general health continued steadily to improve.

The Burmese troops, after the capture of Martaban, had not retired to any great distance and on the 11th and 14th April they attacked the picquets of the 26th M. N. I., but were driven off with very slight loss to the British. On their receiving news of the capture of Rangoon they fell back northward and the troops in Martaban remained for some time unmolested.

With Martaban and Rangoon thus in our hands General Godwin, partly with a view to seize the whole coast-line and partly to prevent any attack on the southern portion of Arakan, left for Bassein on the morning of the 17th May with four hundred men of the 51st K. O. L. I., three hundred men of the 9th M. N. I., who had no opportunity of distinguishing themselves in the attack on the Shwe Dagon Pagoda, and details of Sappers and Artillery, in the Sesostris, Mozuffer and Tenasserim accompanied by the Pluto; Commodore Lambert proceeded with the Lieutenant-General. On the 18th the Flotilla arrived off the Burmese position, a strong, well-built and well-armed mud fort. Not a shot was fired and the troops at once disembarked: a company of the 51st K. O. L. I. landed on the right of the Burmese works, which opened fire upon them (the fire was taken up and ran down the works but soon ceased), and the remainder of the 51st K. O. L. I. landed opposite to a position round a Pagoda in the centre of the line which they almost immediately carried and, moving to their right, came upon the mud fort which was obstinately defended but was carried at the point of the bayonet, and in forty minutes the whole position was in the possession of the British troops. Whilst the works on the left bank were being attacked Commodore Lambert landed on the right and captured and destroyed a stockade mounting six guns. The loss on the part of the troops was five European officers wounded, two warrant and non-commissioned officers and

rank and file killed and eighteen wounded: the loss on board the ships was still less; one warrant officer killed and two officers and seven warrant officers, seamen, and marines wounded. Leaving a garrison of two companies of the 51st K. O. L. I., three hundred men of the 9th M. N. I., and two twelve-pounder howitzers, which was soon reinforced by half a company of Artillery and the whole placed under Major Roberts of the 9th M. N. I., General Godwin and the Commodore returned to Rangoon. The whole Burmese force at once retired on the Irrawaddy and in a few days twenty-six headmen of villages came in to offer their services. The day after the fall of Bassein Martaban was attacked by a strong force of Burmese, estimated at from ten thousand to twelve thousand men, who, however, contented themselves with desultory firing on the advanced piquets and were easily driven off by a strong skirmishing party under Captain Stewart.

Although the rains had already set in General Godwin despatched a force against Pegu where the enemy was reported to be in force. One hundred men of the 80th Regt., one hundred of the 67th B. N. I. with thirty Madras Sappers were placed under command of Major Cotton, 67th B. N. I., and left Rangoon on the 3rd June 1852 in the Phlegethon with the boats of the Fox under Commander Tarleton. After some sharp fighting on the right bank of the Pegu river the enemy was driven across it and the troops proceeded to the attack of the Shwe-hmaw-daw Pagoda which was carried, but the men were too fatigued to render any pursuit possible.

Every movement of the troops had been thus far successful and Lord Dalhousie, on the receipt of the despatches from the seat of war reporting the capture of Martaban, Rangoon, Bassein and Pegu, the good health of the troops and the friendly disposition of the inhabitants, penned an elaborate minute setting forth his views as to the continuance of the war which were fully concurred in by the members of Council present, Sir F. Currie and Mr. Lowis. He pointed out that the Court of Burma had as yet made no sign and that it was indispensably necessary that the war should be continued until the British government had fully vindicated its power and had obtained effectual pledges against a repetition of those outrages which had led to the despatch of troops. He reviewed the whole of our intercourse with the Burmese Court from the commencement of the first war and pointed out the five courses open to the British government, declaring his opinion that the last was the one which should be adopted:—

"1.—That the British government should withdraw its "armies from Burma and, exacting nothing and retaining

"nothing, trust entirely to this second manifestation of "its power for protecting its subjects and territories "against Burmese violence in future.

"2.—That the army should be withdrawn from Burma "generally, but possession retained of the district of "Martaban.

"3.—That the same course might be pursued retaining "Rangoon as well as Martaban.

"4.—That the British troops should continue to hold what "they then occupied.

"5.—That the province of Pegu, extending somewhat above "Prome, should be retained and permanently occupied as "British territory."

The reply was contained in the despatch already alluded to in which the Court of Directors conveyed their own full approval, and that of the Queen's government, of all the measures adopted by the Government of India, and continued "we are of opinion that "the permanent annexation to the British dominions of the pro-"vince of Pegu, including Prome within its northern limit, should "be adopted as the measure of compensation and redress for the "past, and of security for the future." Nothing, therefore, now remained but to press on the operations of the troops and to occupy the valleys of the Irrawaddy and of the Tsit-toung as far north as Prome and Toung-ngoo and with this object Lord Dalhousie himself visited Rangoon and found that the invading force had been by no means idle. In the early part of July Commander Tarleton had left Rangoon with the H. E. I. Company's steamer Medusa and being joined on the way by the Bengal Marine steamers Mahanuddy, Proserpine and Phlegethon steamed up the Irrawaddy. At Kanoung they found a force of one thousand five hundred men who opened fire on them but the small squadron, after shelling them for an hour, continued its course and at sunset of the 7th anchored off Myanoung. Next morning they came across the main Burmese army under the command of Moung Gyee, son of the Maha Bandoola who had been killed at Donabhyoo during the first war, who, on being appointed to the command, had received the same title as his illustrious father. So rapid had been the approach of the British troops from Bengal and Madras, so little had the Burmese government expected war, so disaffected to it were its own subjects that this, the army which was to bar the further progress of General Godwin's troops, consisted of only seven thousand men. Commander Tarleton at once pushed on so as to get above this defensive force and at midnight on the 9th reached Prome, which he found undefended the

governor, Moung Waing, having fled on his approach, and landing he took possession of nineteen iron guns, four of which were 32-pounders, four 24-pounders and two 18-pounders, which he disabled and sank in deep water, and three brass guns and a brass mortar which he brought away. The town was in the possession of the British for twenty-four hours but it was impracticable to retain it with the small force at the Commander's disposal and he accordingly returned towards Rangoon. At Akouktoung he found the Burmese troops crossing the river and succeeded in capturing ten men and five brass guns on field carriages and in destroying a number of war-boats with a large quantity of arms and ammunition. A few days afterwards the Commander of the Pluto landed at Akouktoung and took possession of twenty-eight guns, from 4 to 18-pounders, which the Maha Bandoola had left behind him, some were spiked and some were brought away. The squadron again advanced to Prome and found that the Maha Bandoola was encamped at Ra-thai-myo, about six miles inland, with two thousand men, the remainder of his seven thousand having deserted. The results of Commander Tarleton's operations in July were the capture of fifty-six guns, ten war-boats and several boats containing stores and ammunition; the whole delta of the Irrawaddy was cleared of the enemy, whose force, reduced from seven thousand to two thousand men, was assembled near Prome without Artillery or defences of any kind. These were the respective positions of the British and Burmese forces when Lord Dalhousie arrived in Rangoon where he met and consulted with the three chief authorities, civil, naval and military, and the state of affairs in less than five months after the invading force arrived off the mouth of the Rangoon river could not be stated more clearly or concisely than was done by the Governor-General in his minute of the 10th August 1852, written after his return to Calcutta.

"We are masters of the seacoast from east to west. We "control by our steamers the whole of the streams of the Irra-"waddy from Prome to the sea. With the exception of a few "thousand men near Prome, and a still smaller body towards "Martaban, no Burmese troops whatever can be heard of in the "Lower province. In the Upper province no army has been col-"lected. No defences have been constructed at Prome, and no "force remains there.

"The Burmese have betrayed a total want of enterprise, "courage, power, and resource. Large bodies of them retire at "the mere sight of a steamer or in the presence of a few Europeans "so soon as they are landed. At the same time no sign has been "shewn of an intention to submit, or to treat, nor is there the

"slightest ground for believing that any such overtures will be "made.

"The population of the country, while they evidently cannot "be depended upon to fight, either for us or for themselves, have "everywhere shewn the strongest and most unequivocal desire to "aid our operations, to furnish us with supplies and to obtain our "protection.

"Our troops are healthy, their discipline excellent, their "spirits confident and high".

The result of the Governor-General's visit and consultations and of the communications with the home government was that on the 13th August General Godwin was directed to advance on Prome in September as soon as he was reinforced by two brigades, one from Madras and one from Bengal, and to confine his operations to the province of Pegu. A strong flotilla of Burmese boats was got ready and on the 27th September the advance commenced. The first division, under General Godwin, composed of one company of Madras Foot Artillery with two 24-pounder howitzers and four 9-pounder guns; the 18th Royal Irish, the 80th Regt., the 35th M. N. I. and one hundred and nineteen Sappers, left in the E. I. Company's steam vessels accompanied by the Commodore, who hoisted his broad pennant on board the Fire Queen, and the flotilla arrived off Prome on the 9th October. The Burmese at once opened fire on the shipping. At four in the afternoon the troops were landed a little to the north of the town of which, after some slight fighting, they obtained complete possession. The total loss was one man killed and twelve wounded. Next morning the troops advanced to storm the great pagoda, the Shwe Tshan-daw, and the heights to the eastward, but found that these had been abandoned during the night. The Burmese commander had made precisely the same mistake as had been made by the governor of Rangoon; he had expected the troops to land opposite to the pagoda and to advance along the western approach and had placed batteries so as to enfilade the whole road, and he was entirely taken by surprise when he found that the attack would be made from the north.

The Maha Bandoola had been reinforced and had now some eighteen thousand men entrenched in two stockades at Ra-thai-myo; these were left unmolested until the rest of the British force could be brought up to Prome, but on the 15th October, three days after the capture of Prome the Bandoola surrendered to the British and his troops dispersed.

After the first capture of Pegu in June it was abandoned to the Talaing who promised to hold it against the Burmese, a promise

which they kept for just one week when it was re-occupied by the enemy and the defences strengthened. General Godwin, therefore, after the capture of Prome and before the main portion of the army was moved forward from Rangoon despatched a column to re-take the town. Three hundred men of the 1st Bengal Fusiliers, three hundred of the 1st Madras Fusiliers, four hundred men of of the 5th M. N. I., seventy Sappers, with two 24-pounder howitzers, the whole under the command of Brigadier McNeill, embarked from Rangoon on the evening of the 18th November in the Bengal Marine steamers Mahanuddy, Nerbudda, Damoodah and Lord William Bentinck and starting on the morning of the 19th, accompanied by General Godwin and his staff, anchored two miles below Pegu on the evening of the 20th. The Burmese position was found to be strongly fortified. The next morning the troops landed and advanced on the extreme left of the enemy's position where they had a strong post; this was stormed and carried by two hundred and fifty Europeans under Colonel Tudor. After a short rest the advance was continued against the Pagoda which at 2 P. M. of the 21st November was carried by two hundred Europeans under Major Hill. A garrison of two hundred men of the Madras Fusiliers and two hundred of the 5th M. N. I. with two 24-pounder howitzers, the whole under Major Hill, was placed on the Pagoda and the General returned with the remainder of the troops to Rangoon. On the 23rd a considerable number of Talaing came in and as Major Hill was aware that the Burmese forces had not left the neighbourhood he, with a view of affording the Peguans that assistance and protection which their consistently favourable conduct towards the British demanded, collected them together under the defences of the Pagoda. The Burmese, under more energetic leaders than those near Prome and in the valley of the Irrawaddy, had no intention of leaving the small garrison unmolested, and on the evening of the 27th November a strong force, drawn from Shwe-gyeng, Tsit-toung and Bheeleng whither they had retired from Martaban, advanced to attack it, but were driven off with loss. A reinforcement of guns and ammunition was sent but on the 9th December General Godwin received information that Major Hill was again beleagured by a large force of Burmese, was in want of ammunition and was cut off from the river. More ammunition and two hundred and forty men of the Madras Fusiliers were sent to his relief but on arriving at Pegu they found the enemy in such force that they were obliged to retire without communicating with the garrison. Twelve hundred men under General Godwin immediately left for Pegu in two steamers and in boats, whilst a land column was despatched under Colonel Sturt to clear the line between Rangoon and Pegu where

parties of Burmese were harrassing the villages. The water column arrived on the 14th and the Burmese, finding themselves between two fires, retired before they were attacked. Without waiting for the arrival of Colonel Sturt General Godwin started in pursuit on the 17th and the same day came across the enemy, some twelve thousand men, who were strongly entrenched at Ka-lee-tat, a few miles from Pegu, in an open plain. When the smoke cleared away after the first attack it was found that they had precipitately fled. The pursuit was pressed with vigour until the Commissariat broke down, when the force returned to Pegu and, leaving a reinforcement, embarked for Rangoon on the 20th. Colonel Sturt's column arrived at Pegu two days after the General had left in pursuit of the Burmese.

Whilst these occurrences were taking place in Pegu the dispersed troops of the Bandoola were giving some trouble at Prome and bodies of the enemy had appeared as low down as Akouktoung and Myanoung. On the 11th November two stockades opposite Prome were attacked and taken, and several detachments were sent out which succeeded in destroying the enemy's works and in driving them off. Unfortunately Captain Gardner was killed at Akouktoung; he landed without due precautions and was shot down whilst advancing with his men in single file through the forest.

On receiving the despatches informing him of the occupation of Prome and Pegu the Governor-General in Council felt that as it had been determined not to advance far beyond Prome the time had come to declare the annexation of Pegu and on the 3rd December he wrote to Captain (now General Sir Arthur) Phayre appointing him to the Civil charge of Pegu, and in conjunction with General Godwin and Commodore Lambert, Commissioner for the purpose of negotiating a treaty with the king of Burma; at the same time he forwarded to him a letter for the king and a proclamation to be issued whenever Captain Phayre considered best. The proclamation was short; after very briefly recapitulating what had occurred it declared the province of Pegu to be a portion of the British territories in the east, adding that such Burman troops as still remained in the province should be driven out. The proposed treaty was still shorter; it consisted only of four articles; the first declaring, as usual in such documents, that there should be perpetual peace between the two states; the second that Pegu was ceded to the British; the third that trade should be perfectly free and unrestricted; and the fourth fixing the period within which it was to be ratified. The letter was longer and after declaring the annexation of Pegu warned the king that the British government might, with all justice, continue hostilities to the

entire extinction of His Majesty's kingdom and that if he attempted to interfere with our possession of Pegu such a result would inevitably follow. The proclamation was issued on the 20th December 1852, eleven months after the first shot was fired from the stockades in the Rangoon river, and as soon as possible afterwards the letter was forwarded to Ava.

Desultory fighting still continued when suddenly all the Burmese troops were re-called or disappeared from the neighbourhood of Prome and bands of marauders alone—in one or two instances dangerous by their numbers and resolution—were left to be put down by the British. The cause of this sudden cessation of hostilities was the outbreak of a rebellion at the capital. The reigning sovereign, the Pagan Meng, had two half-brothers, both sons of Koon-boung Meng by the same mother, who, like their father and their uncle, had a strong affection for each other. On one of these, the Mengdoon Meng, the disreputable Pagan Meng turned a jealous eye. On the 17th December that prince, feeling that his life was no longer secure and knowing the hatred of the people generally towards the Pagan Meng, followed the time-honoured custom of his family and accompanied by his brother fled to Moot-tsho-bho. This step, a sign of rebellion, was not taken hurriedly or unadvisedly but after much preparation, and on reaching the right bank of the Irrawaddy the brothers found themselves at the head of a body of men large enough to warrant their resisting the force sent against them; this they completely defeated and then continued their move on Moot-tsho-bho. In a very short time they had collected sufficient adherents to enable them to march on the capital, and on the 1st January 1853 their troops were in possession of the suburbs of Amarapoora, the Meng-doon Meng himself remaining at Moot-tsho-bho. At first the Court was paralysed; the gates of the walled city were left open and nothing was done towards resisting the rebels who busied themselves for three days in plunder without entering the gates; these were then shut and the Pagan Meng prepared for defence. It was not until now that any attempt was made to obtain possession of the king's person, and so miserable was the fighting on either side that little damage was done and no advantage had been gained by the 18th February. It is impossible to say how long this state of affairs might have continued but on that date the Ma-gwe Meng-gyee seized the king's chief advisers and in the resulting confusion the Meng-doon Meng's troops got over the wall and made themselves masters of the city and of the palace. The Meng-doon Meng had kept out of the way, partly to save his character; a strict Bhooddhist and a devoted follower of all the customs of his religion he desired to

impress on his future subjects that the innumerable and, it would appear on revolutions in Burma, inevitable executions took place without his consent or connivance; it is most probable that he was really in ignorance of the details though he must have known generally what was taking place. When all was over, when blood had been poured out like water, the highly religious prince, who was only prevented by the faith which he professed from attributing his victory to Divine Providence and returning thanks to a Supreme Being for the bloodshed and massacres which he had caused, entered the capital and was proclaimed king, his cock-fighting brother being placed in confinement. It is right to add that throughout his reign which ended with his death in October 1878 no blood was ever shed with his knowledge and sanction, and when an execution of a criminal did take place the fact was carefully kept from him: this was the case even when his favourite brother, whom he had made heir apparent, was murdered by his nephews, the king's sons, the Myeng-goon and Myeng-goon-daing princes, in an unsuccessful rebellion which they headed in 1866, whilst the dethroned Pagan Meng, who is still alive, has been kept in honourable confinement holding a small Court of his own and treated by all with the utmost possible respect.

The Meng-doon Meng had been averse to the war from the commencement and was anxious for peace but he declined most positively to sign away any of his territory and no treaty was agreed to; taking warning, however, from Lord Dalhousie's threat he never ventured to attempt to disturb us in our possession of Pegu. He felt strongly, and more than once expressed his feelings, that he, who hated the war and was most anxious to stop it and, after his accession, forbade any open attack on us, should have been threatened with the extinction of his kingdom, the subjection of the Burman power, and the exile of himself and his race. But Lord Dalhousie's letter was written for the Pagan Meng and it was only owing to the Meng-doon Meng's successful rebellion that it was sent to him.

There were still some Burmese troops in the valley of the Tsit-toung and a column left Martaban under the command of Brigadier Steel on the 14th January 1853 and advanced slowly towards Toung-ngoo. On the 25th, after some slight fighting, it arrived at Tha-htoon which was at once evacuated by the Burmese under the governor of Martaban. On the 28th the commandant at Bheeleng surrendered without firing a shot, and on the 2nd February Moung Goung, the governor of Tsit-toung, gave himself up. At Myit-kyo about half way between Tsit-toung and Shwe-gyeng, one month's provisions were found which had been forwarded through Pegu.

Shwe-gyeng was reached on the 11th February and taken possession of, the Burmese having abandoned it. Leaving a portion of his force at Shwe-gyeng. The Brigadier continued his march northwards and occupied Toung-ngoo.

The surrender or withdrawal of all the Burmese forces left the British nothing to do but to put down the marauding parties in the two valleys, and the duties of the troops, as far as carrying out Lord Dalhousie's order that "such Burman troops as may still "remain within the province shall be driven out", were confined to assisting the civil authorities to disperse the bands the lawless freebooters who had sprung up in so many directions.

CHAPTER XII.

MANNERS AND CUSTOMS.

By the effluxion of time, close and continual contact, the will of rulers, the subservience of the governed and, in the main, the identity of religion, Burmans and Talaing, although of entirely different origin and for hundreds of years bitter enemies, have become almost one in manners and customs, though there are still some distinct and easily-recognizable differences. The Arakanese, on the other hand, differ but slightly from their congeners, the Burmans, except towards the north where they have fallen into some of the ways of their Mahomedan neighbours, the Chittagonians. The Arakanese colony of Tavoy, those inhabitants of parts of the Amherst district who still speak Talaing, and the mixed Talaing and Burman race of the delta of the Irrawaddy, have retained some of the customs and some of the religious observances of their respective forefathers. As already shewn, the Arakanese and Burmese languages are essentially the same whilst the pronunciation differs considerably, and the Talaing or Peguan, though written in much the same character, is very different in construction, in sounds and in roots. The Arakanese, separated from those of the same stock, the Burmans, by the Arakan Roma mountains and in closer communication with the Aryans on the west, use a *patois* almost unintelligible to their eastern and northern relations, but the language of the Burman of Mergui, of Rangoon, of Mandalay and of Bha-maw and of the Talaing when speaking Burmese has not, except to themselves, many noticeable differences except some few in intonation and some local expressions. The speech of a Yorkshireman is hardly understood by a Devonian, and that of an East Saxon is not more intelligible to a man from Shropshire but the Burman of Rangoon talks as a Burman of Bha-maw and the language of the Burmanized Talaing of Syriam is not easily distinguishable from that of an inhabitant of Moot-tsho-bho, the birth-place of the founder of the reigning dynasty of Upper Burma. Thus the general manners and customs of these two races, the Talaing and the Burmans, including the Arakanese, are in so far identical that they can be described together.

Birth.

On the birth of a child the mother is rubbed all over with turmeric and, until of late years, kept as hot as possible by numerous coverlets and hot bricks; this practice is slowly dying out though still observed by many*. During seven days she is dosed with turmeric and sometimes with ardent spirits and continually smells the smoke of a burning bunch of a herb called tsa-moon-nek (*Nigella sativa*) and on the third day no noise is allowed in the house as "a change of blood" is supposed to be going on. On the seventh day, and this according both to the old practice and to the new, she takes a steam bath. A large pot is filled with boiling water and in it are placed leaves of the tamarind and of the tha-nat (*Cordia sp.*) and one or two tufts of grass, round the pot are placed mats and over all a blanket, and the patient sits in this cell for an hour. On leaving it she at once takes a cold bath and then goes to bed again. After the seventh day she is allowed to go about her ordinary avocations. The child is put to the breast as soon as washed.

Naming the child.

About the 15th or 16th day the infant is named. In the larger towns a Brahman, in country villages an elder, selects a fortunate day and hour. A feast is prepared varying in richness with the means of the parents, and friends and neighbours and elders of the quarter or village are invited. The mother, with the child in her arms, sits in the centre and the father sits close by. Some aged member of the family suggests a name, which has generally been settled by the parents beforehand, and some conversation on the subject, in which all present may join, takes place. The name is not entirely a matter of choice: the Burmese consonants are arranged in groups of five and a group is allotted to each day except Sunday which has the vowels as its letters. The first group—*k*, *kh*, *g*, *gh*, and *ng*—belong to Monday; the second—*ts*, *tsh*, *z*, *zh*, and *gny*—to Tuesday; the sixth—*y*, *r*, *l*, and *w*—to Wednesday; the fifth—*p*, *hp*, *b*, *bh*, and *m*—to Thursday; *th*, *h*, and *l* (Pali), to Friday; and the third and fourth groups†—*t*, *ht*, *d*, *dh*, and *n*—to Saturday. The name given to the child must commence with one of the letters belonging to the day on which it was born but within this limit any name may be chosen; thus a Moung *An* was born on a Sunday, a Moung *Kheng* on a Mon-

* "Lorsque la nouvelle accouchée est sur son lit, on place audessous un réchaud "plein de charbons ardents que l'on entretient nuit et jour sans discontinuer. On lui "bassine aussi la ventre avec une bassinoire pleine de charbons ardents, et cela une ou "deux fois par jour. La nourriture qu'on lui donne est ordinairement épicée, sèche et "tres saléo. Apres un moi ecoulé la nouvelle accouchée peut sortir, mais avant cela on "lui peint, des pieds à la tête, avec du safran afin de la preserver de la mauvaise in-"fluence de l'air." Histoire et description de la Basse Cochinchine par G. Aubaret. Paris: 1863, p. 87.

† See Burmese Alphabet, *ante*.

day, a Moung *Tsaing* or a Moung *Tsheng* on a Tuesday, a Moung *Rouk* on a Wednesday, a Moung *Pe* or a Moung *Bha* on a Thursday, a Moung *Thaing* on a Friday and a Moung *Naw* on a Saturday.

A note of the hour and of the date of birth is made and when the child is five or six years old a Poon-na or Brahman is called in to prepare the *Tsa-da* or certificate of birth : on this, which is a small strip of palm leaf, he records with a style the year, the month and the day of the birth, the child's name, the planet under which it was born and the house in which the planet was. This is carefully kept by the parents and is made use of whenever the services of an astrologer are required to fix on a fortunate day and hour, which is often the case as will be seen further on. Sometimes the Tsa-da is drawn out soon after the birth.

Names given in infancy can be changed at any time before puberty and any number of times and one of the birthday initials need not be used in the new name as in the old. The change is made by sending round to each of the friends and relations a small quantity of pickled tea with a message to the effect that "this is "from so and so, hitherto known as so and so" *e. g.* "This is "from Moung Tsheng formerly known as Moung Moung." No change is made in the Tsa-da which cannot, therefore, be trusted to for the name.

Entering a monastery.

The next most important period in a boy's career is when he is made a "Sheng" or probationer for the monastic life. When he is eight or nine years old he is sent to a monastery and is taught to read and write and when he is about twelve he is clothed with the yellow robe of the novitiants. Strictly no lad under fifteen should be admitted to the fraternity but the modern tendency is to perform the ceremony when the boy is three or four years younger than this. Strict Booddhists hold that no male human being who has not been a probationer can count this existence as human in his numerous transmigrations, he cannot gain merit as a man, but only as an animal yet, somewhat inconsistently, they appear to hold that he can gain demerit, if the expression may be used, as a man. The manner in which a lad is admitted as a Sheng has already been described in chapter III. page 212 *et seq.*

Ear-boring.

For the girl the most important event after she has been named is the boring of her ears. This takes place when she is twelve or thirteen. An astrologer or, if the services of such an one cannot be obtained, the elders fix upon a fortunate day and hour, a feast is prepared, and the relations and friends of the family are invited. In the case of the rich two gold needles, sometimes set with precious stones, are prepared and

even in the case of the poor no baser metal than silver is used. When the astrologer, or the acting astrologer, calls out that the favourable moment has arrived the professional ear-borer, or if none be present, some member of the family, advances and rapidly passes the needles through the lobes of the ears; with less fortitude than her European sister the girl usually indulges in violent struggles and screams, but her female relations control the former whilst a band of wind instruments and drums drowns the latter. The needles are turned and moved every day or oftener and when the walls of the wounds have healed the needles are withdrawn and a long process has to be gone through to enlarge the holes to receive the ordinary plug, which is about an inch long and from one-half to three-quarters of an inch in diameter. As many of the round stems of the inner blades of Kaing grass (*Saccharum sp.*) as the hole will receive are passed in and every day another one is added; after some time a na-gat, an ear-plug of peculiar make, is introduced. This is divided into two parts by a division near one end at right angles to its length the two portions uniting by a screw, one part is placed through the ear and the other is screwed into it; gradually larger and larger na-gat are introduced until the orifices are opened enough to receive the na-doung or plugs. These are made of various substances according to the rank and wealth of the wearer; gold set with jewels, plain gold, amber and even glass, whilst amongst the very poor the hole is sometimes kept open by a roll of cloth.

Boys ears are bored at the same period and the holes are enlarged in a similar way.

Tattooing.

The important operation of tattooing is performed after the lad has left the monastery: girls are never tattooed except amongst the Khyeng. The whole person from the waist (in a line with the navel) to the knee is covered with figures of animals with tracery filling up the intervening spaces so that the whole resembles a pair of dark blue breeches. The arms and back are sometimes more sparingly tattooed in red. The material used is lamp-black obtained from the smoke of sessamum oil, or vermillion as the case may be, mixed as occasion requires with water. The pattern is generally, but not always, first traced on the skin with a fine hair pencil and is then tattooed in by a series of closely-adjoining punctures made by a long, pointed style, with a weight at the top, worked with the right hand and guided by the left which rests on the patient's body with the fore-finger and thumb so joined as to form a sort of groove for the style to work in: the style is of brass and consists of three or four portions; the bottom piece is solid and is pointed like an

ordinary lead pencil and is divided by two slits at right angles to each other carried up for about three inches from the point; these are fine near the point and about one thirty-second part of an inch broad higher up, these enable it to retain the colouring matter. The next joint, or two joints if there are four, is a hollow tube and the last is either solid to give weight or has a brass weight at the upper end, sometimes plain, sometimes fashsioned like a bird or an animal. The operation is painful and is done in patches and not all at once and on each occasion the child is put under the influence of opium; it has more than once occurred that the lad has died from an overdose of the drug. Except when Burmanized the other tribes, except the Khyeng, do not tattoo themselves. These, the Khyeng, tattoo the whole of the faces of their young women with closely-adjoining narrow dark blue lines which gives them a most hideous appearance: the origin of the custom, which is dying out in British territory, is uncertain; according to some it was to enable the Khyeng to recognize their females when they were carried off in a foray by some neighbouring tribe, according to others to put a stop to the Burman practice of carrying off their most lovely maidens.

Marriage.

There are three ways in which, according to the laws of Menu, a man and woman can become husband and wife—(*a*) when the parents give them to each other, (*b*) when they come together by the instrumentality of a go-between and (*c*) when they come together by mutual consent; but except in the case of women of mature age who have been married before* the two latter forms require the prior and at least passive sanction or the subsequent ratification of the parents or guardians, for on a marriage by mutual consent coming to their knowledge they may insist upon the pair separating; knowledge without adverse action within a reasonable time is held to be tacit consent and bars their right.† The rule that until marriage with their consent a daughter belongs to her parents is asserted in so many words and is strongly insisted on in several places. The expression stolen

* "If a woman be a widow or divorced from her husband and she marry the man "of her choice her parents, guardians or relations have no right to interfere to prevent "it; let the woman who has has had a husband take the man of her choice. If she has "never had a husband she shall have no right to take one without the consent of her "parents or guardian."—Dhammathat, vol. VI., sec. 20.

†"If the parents of a young woman shall not give her away, but she shall be stolen, "(seduced away) even if she has had ten children they have power to cause her to "separate from the man and give her to another; the man has no right to say that she "is his wife. Why is this? Because a daughter belongs to her parents."

"If a young woman runs off with a young man not approved by her parents and "having concealed herself for some time shall return to the village or neighbourhood in "which her parents live, and have two or three children, or live there five or ten years "with the man after her parents have seen and known (of her being there) they shall "not have power to cause her to separate (from her husband)". Dhammathat, vol. VI. sections 21, 22.

or seduced away which is used in that portion of the Dhammathat quoted in the note must not be confounded with "seduced". The Burmese word used would, if employed in connection with property, correctly be translated 'stolen' and this emphasises the remark that a daughter belongs to her parents and clearly from the 28th section of volume VI. she belongs more especially to the father, for after enumerating the twenty-one classes of women who have persons to look after them (amongst whom are included as 5th a young woman; as 8th one under care of her father; as 9th one under care of her mother; and from the 10th to the 21st a woman under the care of some one or other of her relations who are specified in each case) the Dhammathat continues "of these 21 if "any one of those who are under the protection of"—here follows an enumeration of the various guardians except father and mother—be given by her protector "to the man of her choice "without the knowledge of her own father he (the protector) shall "have no right so to give her away, and the man to whom she shall "be given shall have no claim to her; let him only to whom she is "given by her father be her husband. If her father be dead let him "only to whom she is given by her mother be her husband; if her "mother be dead no one but relations (brother and sister) have a "right to give her away; let the man to whom she is given by her "nearest relation be her husband." Indeed from birth to death a woman is considered as a mere chattel*. Happily this is far from being the case in practice and a married Burmese woman is much more independent than an European in a similar position even in the most advanced States.

It would seem, then, as if the framer of the Dhammathat intended the first kind of marriage to be the usual and proper one, the second to be allowed for persons of mature years, and the third to be permitted to avoid scandal but guarded by the necessity for the open or tacit consent of the parents, for, as we have seen, such consent is necessary to bind the tie and to make separation impossible except by the ordinary laws of divorce, which certainly are lax enough. But the tendency of the time is not towards greater strictness and after the parents have given their consent the young people are, in a majority of instances, allowed to marry almost immediately. This used not to be so; they had to go through a tedious but, perhaps, useful probation. The man was not con-

* "As regards a person giving his wife to another; if the former husband wishes "to recover her he shall do so only on paying the price of her body. If the wife refuses "to return to him because he had given her to another but wishes to remain with the "person to whom she had been given let her remain, the first shall not say that he is "owner of the wife. Why is this? Because he has given her to another." Dhammathat, vol. VIII., section 1, clause 8.

sidered as of age to marry till he was twenty-four or twenty-five years old, now they marry at eighteen or nineteen; the age of the girl, then as now, was immaterial if she had reached puberty. When a young man of twenty or twenty-one wanted to marry he applied to his parents and if they saw no objection to the young woman of his choice they went, with one or two elders, and asked the father and mother of the girl if their son might "have the run "of the house", carefully avoiding as improper all mention of marriage, though this, of course, was always understood to be the end in view. If the girl's parents consented the lad could go to the house as often as he liked and in fact "kept company" with the girl. This continued for not less than three years, the parents in the meanwhile watching the character of the semi-engaged couple. At the end of that time, if they continued of the same mind, the lad's parents, if still approving, went with elders and asked for the hand of the girl in marriage for their son. The parents of the girl very rarely attempted to force her inclinations and there had been plenty of time for her and for them to form an opinion as to whether the lover would make a good husband or not. If they agreed the question of dowry was discussed on both sides and settled and the astrologers were applied to for a fortunate day and hour. Some insisted on the years of the bridegroom's age being of an uneven number, but this was not always the case. A bridal chamber was carefully prepared in the bride's father's house and on the day fixed a feast was there given, the whole of the expenses, however, being defrayed by the bridegroom's parents. At the propitious hour, in the presence of the assembled guests, the bride and bridegroom joined their right hands together, palm to palm, ate out of the same dish, and fed each other with one or two morsels in token that they would mutually aid and comfort each other; in the presence of all the bridegroom's father made over to the bride the jewels, ornaments, or fine clothing that he had agreed to give and the ceremony was complete. General feasting began and lasted till the evening when the newly-married couple entered the bridal chamber under showers of saffron-coloured rice thrown by all well wishers. For seven days afterwards the happy pair were supposed not to speak to, notice or even see any one else, and so far was this carried that in families of great respectability they did not even leave the bridal chamber their meals being sent in to them, and they thus commenced their married life by what, after three years intimate acquaintance and daily converse and without books must have been anything but a "honey week".

The girl was generally young and it was but seldom that for one or two years the newly-married couple left the house and set

up for themselves and in some cases, when the bride was the only daughter or the last married, never did until the old people died, unless indeed they were divorced when the husband left.

Polygamy is recognized and permitted. In one passage it is distinctly recorded that having even ten wives is no fault and in the tenth volume of the Dhammathat, which treats of the law of inheritance, specific rules are laid down for the partition of the property of a man who has died having had many wives, *e. g.*, "the law of partition on the death of a husband who had many "wives living in the same house and eating out of the same dish", section 38: "the law of partition between a head wife, a concubine, and a slave wife"; section 40. The right to have several wives is not much used in practice and the great majority have only one, but the Sovereign emulates Solomon in his connubial and domestic arrangements.

The forbidden degrees are few. The Sovereign marries his half-sister to ensure the purity of the Royal blood, but in practice the throne belongs to the son whom the Sovereign (or the ministers in his name really after his decease but before his death is made known or acknowledged) nominates, whether the child of the half-sister or not, or to him who can seize it by force. The marriage of a son with his step-mother is allowed (Dhammathat vol. X., section 49). Marriages with mother, daughter, sister and half-sister (except in the case of the monarch), aunt, own grandmother and grand-daughter are forbidden; all others are permitted.

Amongst the Kareng tribes, except the Kareng-nee, infants are frequently betrothed. If a young man wishes to marry a young woman he first obtains the parents' consent and then employs a go-between whose first duty it is to consult chicken bones. If the answer is unfavourable the whole matter drops but if it is favourable the marriage is arranged. A feast is given by the intending bridegroom's relations and the gall of one of the animals killed is examined; if it is flaccid the match is, even then, often broken off. The marriage generally takes place in a few days but is often delayed. When it is about to take place the bride is conducted to the house of the bridegroom's parents with music and dancing and, as she ascends the ladder, is deluged with water. Two elders, one from each party, take each a cup of spirits and the bride's representative repeats the duties of a husband, they then give to each other to drink saying "Be faithful to your covenant" and this ends the ceremony. Amongst the Kareng-nee the bride and bridegroom having obtained their parents' consent the bride and her friends come to a feast prepared by the bridegroom and next day he and his friends visit her and the feast in her house completes

the whole ceremony. Amongst the Khyong, who occupy the eastern and western slopes of the Arakan mountains, daughters as soon as born are given to one of their brothers or if there is no brother to one of their father's sister's sons who in after life gives her away in marriage and who is always treated with great respect by the husband. Girls are usually affianced when young to one of their cousins but the match is not unfrequently broken off by one or the other, in which case a fine has to be paid for the breach of promise. The marriage feast is prepared in the bride's house, after the wise-men have inspected the liver of a pig in the bridegroom's and pronounced the omens to be favourable; if the liver is unpropitious on three successive occasions the match is broken off and the girl's parents make presents to the bridegroom. When the marriage is about to take place the bridegroom provides large quantities of khoung, a fermented liquor made from rice of which the Khyeng are inordinately fond and his friends bring pork and the girl's family produce fowls. In the centre is placed the pot of liquor and in it is fastened a neatly-pealed bamboo with a cross-piece let into a slit at the top, this separates the two parties and any one crossing from one side to the other has to pay a pot of khoung as a fine. An elder on the bridegroom's side proposes that the marriage shall take place and an elder on the bride's side recites the decision of Hlee-neu, the common ancestor of all human beings, on being applied to by the founders of the Khyeng race who were brother and sister *viz.* that they should marry and their sons marry their daughters but that in all subsequent generations brothers' sons should, whenever possible, marry sisters' daughters. The bridegroom makes presents to the brother who owns the bride who, if he is satisfied, signifies his assent by eating some of the bridegroom's pork and the ceremony is complete; bridal presents are given and eating and drinking commence; should any of the bridegroom's party touch the fowls or of the bride's the pork a fine of khoung has to be paid, and the feast gradually becomes a scene of drunkenness and riot.

Amongst the tribes in the Arakan Hill Tracts, Mro, Khamie and others, intercourse before marriage is unrestrained. Marriage is a simple contract, the man making presents to the woman's parents and takes her to his own house after a feast. At Mro marriages the oldest woman of the bride's family ties a string round the wrist of every one present and this is allowed to remain till it drops off.

Divorce.

The liberty of divorce is almost but not quite unrestricted, *e g.* for certain faults in a wife a husband is not entitled to put her away and to retain the property until he has corrected her three several times. But whilst hus-

bands leave their wives and wives. their husbands on the most trivial grounds the exercise of this right is practically much restrained by the elaborate laws regarding the division of property. The law-giver seems to have, as it were, laid down that marriage is a civil contract which either party can dissolve but that unless dissolution is founded on solid reasons the party wishing to separate shall suffer in property and in inverse ratio to the strength of the reason; divorces, in consequence, and in consequence also, it must in justice be said, not only of the necessity which a father of a family feels for the aid of his wife, the manager whom he consults on almost every matter, the one who keeps and looks after the shop which in country places so many establish in their houses to eke out their scanty means, of the respect for man as man taught to every woman from her birth but also of the character of the people who are very greatly attached to their families and are of a most buoyant disposition, are not very common. One cause, and unfortunately becoming a more common one, is the evil conduct of the young and hurriedly-married husband who turns out a drunkard, a gambler, or an opium-smoker or perhaps all of these combined.

Funerals.

Exclusive of that provided for the monks there are five kinds of funeral: one for the Sovereign; one for members of the Royal family; one for nobles, that is for those who have received and retained titles, for nobility and rank depend on the breath of the king; one for rich men*; and one for men of low estate. In British Burma there is no one who is entitled to a funeral of any except the last kind, but since the British occupation the poor have encroached on the privileges of the rich and little or no ceremonial distinction is drawn after death, indeed officials are sometimes buried almost as if they held patents of nobility. The kind of funeral reserved for the monks, which differs in details according to the hierarchical position and to the supposed sanctity of the deceased, has already been described in chapter V. p.p. 232, 233. Old people of both sexes are never buried but their bodies are burned.

As soon as death has taken place the body is placed in the front portion of the house (not in the verandah) between the house posts and is carefully washed from head to foot and wrapped in any old clothes till the burial garment can be got ready; when all has been prepared the two great toes are tied together and the body, from the armpits downwards, is swathed in new white cotton cloth, it is then dressed in the finest clothes obtainable (varying,

* Merchants who have acquired "considerable property and are registered by a royal edict "as Thoo-hte 'or rich man' which is a kind of title that places them under the protection of "the Court."

necessarily, according to the means of the family) a jacket and htamien (petticoat) if a female, a jacket and poot-tsho (waist-cloth) if a male; the two thumbs are tied together and a piece of silver, or in the case of a wealthy man of gold, is put between the teeth. The ligature of both thumbs and toes is composed of the hair of a son or of a daughter or, if this is not obtainable, of a piece of white cotton cloth. The Hpoongyee (monks) of the monastery the occupants of which the deceased and his or her family "sat under" are informed of the death as soon as it occurs and one or more attend within a few hours or, if the death took place at night, early next morning; by this time the body has been placed in the coffin, which is made of Lek-pan (*Bombax malabaricum*), Eng (*Dipterocarpus tuberculatus*) or of any cheap wood, and the lid screwed down. Formerly the coffins were, and in general, except amongst the wealthier in large towns still are, very flimsily made and the lid nailed down. The Hpoongyee repeats a string of sentences, partly in praise of Gaudama, partly on the emptiness of all human wishes and on the changeability of all things. As soon as the news of the death has spread relations and friends commence to arrive and join the sorrowing family or aid in the preparations, such as making and ornamenting the hearse, a work which is carried on in the street or lane outside the house; until the funeral a band of musicians plays dirges in front of the house. The richer the deceased the longer the body is kept, a practice which seems to have originated in the desire, now almost a ceremonial necessity, that all the children and descendants should be present. When the coffin has been placed on the hearse it is carried to the burial-ground in procession, if it is that of a poor person by the relations and neighbours, if it is that of a rich one by men hired but in such a case it is considered to be a special mark of friendship to aid in carrying it. One or two Hpoongyee should go in front, though this is now often omitted, followed by the band, then comes the body and lastly the mourners, male and female. On arrival at the grave-yard the music ceases, the Hpoongyee ascend into a zayat or public rest-house, of which there is always one and often there are several, and the coffin is placed in front of them, on the south side, with offerings, made to them on account of the deceased, between them and the body. After intoning another string of Pali sentences the Hpoongyee leave the burial-ground and the coffin is carried to the grave which has already been dug by the grave-yard keepers at the spot selected by the relations and of the depth required by them. Here the coffin is swung backwards and forwards once or twice as a salute to the spirit of the place and is then lowered into the grave.

The nearest relative, male or female, throws on a little earth and the other relations and friends then do the same after which the grave-diggers fill up the grave; it is considered a mark of respect to remain till this is completed. As it is believed to be possible that the 'Ego' of the deceased may have become a devil it is held necessary to exorcise it. The eldest male relation holds out an open handkerchief and calls out "Come! Follow!" and then suddenly closing it carries it home and places it between the house posts on the left side of the house in which the deceased died. Seven days after the death a feast is given to the Hpoongyee and to all who attended the funeral and the house is purified. The handkerchief brought home from the grave-yard is given away to any poor neighbour as the devil, if the deceased became one, can now give no trouble.

If the body is to be burned the coffin is not always fastened down and instead of a grave being dug four logs of wood are placed on the ground, two parallel to each other and two upon and at right angles to them thus forming a square, with sweet-smelling woods placed between them; the coffin rests on the whole: it is usual to place some iron receptacle under the coffin to facilitate the collection of the charred bones. The pyre is lighted by one of the burial-ground keepers and as soon as the coffin and body are consumed and the fire is out the three nearest relations search for the bones and such as they find they carefully wash in cocoa-nut milk, and in some cases of late years afterwards in scent such as lavender-water or Eau de Cologne: these are then wrapped in a white cloth and the whole placed in a new pot which, in the case of the wealthy, is sometimes gilt; this pot remains in the house for seven days after the death when the bones are either buried in a small receptacle near some pagoda or on any hill or rising ground.* In some cases the relations pulverize the bones and make them into a small image before which they recite their morning and evening sentences, for prayers they cannot in strictness be called. Infants are usually buried in their cradles and children in unornamented coffins. Amongst the Talaing the body of the deceased, if the youngest of the family and still an infant and if other children are living, should be buried as soon as possible after death and should not be kept unburied during a whole night; if the death occurs during the night the body should be buried before morning.

If a woman who has had children gives birth to a still-born infant a piece of iron is placed in the cradle-coffin, a relation saying

* It would not be proper to erect a pagoda over the remains of a layman not of royal blood.

"return not into the womb of thy mother until this iron is soft as "cotton." If a woman dies in child-birth and the child dies also they are buried separately. If a woman who is four months or more gone in the family-way dies the fœtus is forcibly withdrawn and secretly buried. If this were not done the husband would, in future existences, marry the same woman who would die in the same way. The secrecy in burying is to prevent necromancers and witches from exhuming the body and using portions of it as a charm.

The coffins and hearses are variously ornamented according to the wealth of the deceased's family, the former with velvet and gold- and silver-leaf, the latter, a pyramidal structure rising in ever-decreasing tiers with a spire on the top, with white and coloured paper and gold- and silver-leaf.

Amongst the Kareng some of the tribes bury and some burn their dead but the latter is, comparatively, a new practice and all seem formerly to have buried. The Khyeng invariably burn the body and subsequently bury the bones in the family burial-ground with a ceremony resembling an Irish wake. These burial-grounds are few in number and the Khyeng are very loath to disclose their locality; sometimes they are hundreds of miles from the scene of the death though the deceased's family may have been settled in its present home for many generations. The tribes inhabiting the Arakan Hill Tracts all bury their dead; the Shandoo in a stone-lined grave and in a supine posture, with the weapons used during life, and the body placed so as to face the east.

Slavery.

Slavery still exists in Upper Burma and in a very modified form in British territory. Here the slaves are descendants of those dedicated to a pagoda and their duty is to keep the platform and surrounding buildings and the approaches clean: they are more of an outcast body than slaves as they have no master and, except in so far as society is ruled by custom, are perfectly free and independent; slaves, however, they are called by the Burmese and they are looked down upon as "unclean". Considerable inconvenience and trouble was caused by a man who had such "slave" blood in him being appointed as a native magistrate, but it was clearly impossible that he should be removed or that he should not receive full support in the execution of his duties. The difficulty was increased by the not unnatural effect that the passive resistance of his subordinates and the people generally had on his own character and actions, but with care and tact all was set right at last. Of these pagoda slaves Sir Arthur Phayre remarks. "It is "a strange anomaly in the Bhoddhist religion (as it prevails in "Burma) that the servitors of the temples are invariable outcasts "with whom the rest of the community will hold no intercourse.

"In Burma Proper pagoda slaves are pardoned convicts or persons "condemed to this employment on account of crimes" and, writing of the position of pagoda slaves in British Burma, he continues, "these people are now, of course, released from their "compulsory servitude and have become cultivators but, in conse-"quence of their former condition, they are regarded by the peo-"ple with as much disgust as they would be from their low caste "by the Hindoos." He is especially alluding to the "Dom", who were imported into Arakan as pagoda slaves by the kings of that country but the remark applies equally to all pagoda slaves and their descendants.

Amusements.

The principal amusements of the Burmese and Talaing are pwai or theatrical representations, boat-races and buffalo-fights (mainly amongst the Talaing and principally in Tenasserim), lek-pwai or boxing-matches, of which the Kareng also, especially in Amherst, are very fond, cock-fighting, a game played with a ball (common amongst Burmans but rare amongst Talaing and almost unknown amongst Kareng) and a game played with large seeds, a miniature representation of nine-pins.

The pwai are of two kinds; in the one men and women act in the other dolls are worked by strings. The pwai are performed by bodies of strolling players who wander over the country seeking employment but often a well-known troupe is specially sent for and on some occasions a considerable sum is paid to it. Pwai are always given in the open air and any one that pleases can come and look on; sometimes an open shed is constructed and a bedstead or two or some chairs are placed therein for the giver of the entertainment and his intimate friends, who are bidden by the sending of a small parcel of pickled-tea, with a table in front on which are put cigars, goglets of water with cups, sweetmeats and, if an European is invited, the inevitable bottle of brandy. For a Zat-pwai, that is one in which men and women are the actors, a small branch of a tree or a plantain tree is stuck into the ground and mats are laid down all round it for the stage; underneath the branch is a jar filled with earth oil used by the actors, as occasion requires, to replenish the cups, placed in various places on posts or on the ground, which serve as foot-lights. Just outside the stage is seated the band and between the stage and the musicians is a cross-stick supported on two others on which hang the masks and other parts of the property to be assumed when wanted. Somewhere in the immediate neighbourhood women and young girls establish a temporary market, squatting on the ground in two rows facing each other and with a passage between, each

with her low table on which are placed her wares, cigars or sweetmeats or vermicelli or cakes, and each lighted by an open lamp, consisting of a bit of rag as a wick in a little saucer filled with earth-oil protected from the wind by a piece of tin fastened to the stick which serves as a support. Soon after dark the audience from far and wide begins to assemble, boys and girls of every age, men and women, some of the last with infants at the breast; the band soon strikes up and the play commences. The dramas are all founded upon supposed events in the former lives of Gaudama or in the lives of kings and princes in India. The play usually lasts all night and the majority of the audience, grouped in a dense mass on the ground, sits steadily through it, though some leave, others go to sleep for an hour or two resting where they are, and others, especially the lads, wander through the "bazaar" to buy sweetmeats or cigars or to carry on flirtations with some of the stall holders.

The invitations are given by sending round a small quantity of pickled-tea and generally but not always each person so invited gives a rupee or two towards the expenses. Designing men sometimes make use of this custom in order to recruit their finances and having collected say Rs. 500 from their friends give a pwai which costs Rs. 250, pocketing the difference.

The Root-thai or Marionette pwai are carried on in much the same way except that the stage is a long and well-raised platform built of bamboos and divided longitudinally by a curtain, the front division being the stage on to which are lowered the dolls worked by the men who stand behind the curtain. The movements, caused by strings attached to the heads, limbs and joints, are wonderfully natural, but if a string gets loose or caught, as is sometimes the case, a large hand and arm, grotesque in their appearance amongst the dolls, come down and all is put to rights. As a general rule one end of the stage has on it a throne to represent the court and the other some branches to represent a forest.

The instruments of the band, which differ in no way from those used on other occasions when the custom of the country requires that there should be music, are :—(*a*) a *tshaing*, a highly-carved wooden circular frame about thirty inches in height and four or even five feet in diameter round the inside of which are hung drums of different tones which are struck with the hand by the musician, who sits inside; (*b*) a *kyee-waing*, a very similar instrument, but not so high, in which the drums are replaced by gongs beaten with a stick; (*c*) two or three *hnai*, a kind of clarionet with a broad bell-shaped, moveable and loosely attached brass mouth, which gives forth most discordant sounds; (*d*) *ra-gweng*, or

large cymbals; (*e*) *than-lweng*, small cymbals; (*f*) *pat-ma*, a drum or tom-tom beaten with the hand; (*g*) several pairs of castanets, or *wa-lek-khook*, each formed of a piece of bamboo four or five feet long split down the centre, the two halves being clapped together by the performer.

Sometimes these pwai are scenes of very serious quarrels which can only be compared to faction fights. Two young men quarrel about a mat, say, the dispute waxes warm, women join their voices, and in far less time than it takes to write it, the peaceably-disposed fly in all directions, the music stops, the actors disappear, and a surging mob of men shouting and fighting has taken the place of the quiet and orderly throng of happy spectators. It is mainly for this reason that, in practice, no pwai can be given without leave from some superior official and that the police are warned and have men in attendance to arrest quarrellers before the quarrel can spread. The importance of nipping the row in the bud is so great that every European officer of a few years experience in the country on hearing the unmistakeable chatter of the beginning of the row will without ceremony leave whatever he may be doing and rush to the spot.

The boat-races are usually held at the full moon at Tha-deng-gyoot, the seventh month, which falls in October, and are managed by a self-elected committee. Now-a-days they depend much upon the willingness of the district officers to encourage them. Preparations are made for days beforehand and crews are collected and trained. On the day fixed the river bank wherever the races are held is crowded by men, women and children in their gayest attire and little is heard but the sound of merry voices and the jingling of money as almost every man and many women make bets with their neighbours. Anchored out in the stream, with the head to the current, is a boat with a long hollow bamboo across it, at right angles to its length, and through this is passed a rattan, projecting beyond it on both sides. This is the winning-post, the boats come up, one an each side, and the foremost man in the winning boat snatches at and draws out the cane which thus becomes a sign and proof of victory. The boats are low and very light canoes from thirty to forty feet in length and the crews consist of from sixteen to twenty men or more, their hair well knotted up and with no clothing but their waist-cloths done up round the waist and between the legs as tightly as possible. The boats are propelled by paddles, no oars are used, at the rate of from eight to ten miles an hour with the current the men shouting and bending together to each stroke rapidly given. Each boat belongs to some village or group of villages and is manned by men specially selected

by the recognized authority in boating matters in that village or group; sometimes, indeed, and especially if the Deputy Commissioner takes an interest in the races, the native magistrates of townships will personally work up their crews and on the day of the races are as excited and interested in the victory of their boats as are the men themselves. It is a curious mixture of monetary, official and personal interest for if a native magistrate is transferred to another township he will strain every nerve that his new charge shall produce a boat which will beat the one of the township that he has just left, and will, out of official pride, freely put his money on it. Even if he has taken no personal interest nothing would induce him to back any boat against one from his own township.

The matches are made up by the men themselves represented by their trainers, if they may be so called, and two boats only start together: there is no such thing as many boats entering for a race, or a race thrown open to all. The races are matches between villages or tracts of country, though in a moment of excitement a victorious boat may challenge all comers; in such a case, if the challenge is taken up, the arrangements are then and there made by the trainers or officials with no little good-humoured gesticulation, chattering and even vociferation. As each race ends the shouts of the winners among the crowd of spectators become almost deafening and the grave officials sitting in the temporary "grandstand" surrounding the civil officer, who at ordinary times are quiet and sedate, share in the excitement, whilst some of the victorious crew jump up and dance a kind of war dance, sometimes with the cooling effect of upsetting the boat. The prizes are either money or silk handkerchiefs provided from funds collected by public subscription.

The boxing-matches are very different from those which once formed the amusement of even the educated classes in England. The men appear as little dressed as in the boat-races but the waist-cloth is so arranged as to afford complete protection against the possibly dangerous effect of any blow given well below the waist; striking with knee and kicking are allowed. The two men who are to fight circle round facing each other, slapping their arms with their hands in token of defiance and each watching for an opportunity to seize his adversary. Suddenly there is a rush forward from one, a kick, blows delivered, not from the shoulder but round-hand, possibly a grip, a struggle and both fall. If the fall is a full and fair one with the back touching the ground all is over, but as in the excitement the combatants cannot stop, the keepers of the ring, without waiting, rush in and separate the two.

separate the two. If the fall is not fair and full there may be much struggling and by a dexterous twist the one who seemed to have the victory in his grasp is rolled over and declared to be vanquished. If blood is drawn, even by a mere scratch, it is sufficient and the unbleeding gladiator is declared the conqueror. On one occasion one man claimed the victory on the ground that he had drawn blood and in evidence shewed the fresh blood on his hand which when wiped was unwounded. His antagonist indignantly denied that the blood had been drawn from him, but the native magistrate of the claimant's township suddenly caught the objector by the hand and exposed it covered with blood. He was bleeding at the nose from an exceedingly mild "facer" and was, by acclamation, ignominiously turned out.

Those Kareng who inhabit the country about Doon-reng, in the Amherst district between the Salween and the Zwai-ka-beng hills, are noted for their pugilistic powers and numbers of the lads go to the annual festival at Tha-htoon to exercise them; indeed a young Kareng woman in that part of the country rarely bestows her affections upon an aspirant for her hand unless he has shewn prowess in a lek-pwai.

Buffalo-fights are held at Amherst and Mergui but are most common at Tavoy and usually take place on a large plain adjoining the town where are erected numerous booths on bamboo platforms surrounding an open square. "For weeks before the "festival takes place it engages the whole time and thoughts of "the people of Tavoy, and the town at nights is all animation and "life instead of being devoted to rest. * * * Each village, and "each district of the town, selects its animal which is kept highly-"fed and trained to fight.* A guard of those interested in its "feats is kept constantly round it day and night, sounding gongs "to break it in and remove its fears of noise, as well as to prevent "any rival village from conveying to it any food that might injure "it. Bets to a large amount are laid on it, the rider is selected "from the most active and experienced of the villagers and songs "are composed in honour of its expected exploits. On the day "of the fight the animals are brought to the neighbourhood of "the arena and when a match is called for two huge beasts are "conducted into it from opposite ends each under a cloth canopy "and accompanied by a large band of backers singing and dancing "and carrying a number of a flags which they plant in the ground "in front of the animal. Each buffalo has a man on its back "holding a rope fastened to a cord passed through its nostrils,

* Fighting buffaloes are exceedingly dangerous and on more than one occasion have, whilst out grazing, killed harmless plough cattle and even men.

" and two others one on each side of its head. The two buffaloes " are then brought into the centre opposite each other and butt " and gore till one turns and runs away; often they will not fight " but keep their heads locked and remain in that position notwith- " standing the encouragement and blows of their riders till the " patience of the spectators is exhausted. Frequently one turns " tail at once and then gets hooted off. A real downright fight " seldom occurs; when it does it is a very brutal sight as the " animals gore each other most horribly, the horn of one perhaps " thrust into the eye of the other. It is a dangerous amusement to " the riders and followers, and sometimes to the spectators when " an animal gets furious from pain and rushes in amongst them. " * * * The animal will not generally face after he has turned tail " once and when it is certain that he will not fight again the " music strikes up, the winning party rush into the centre of the " square dancing and yelling ten times more fiercely than when " the fight began; some, to shew the exuberance of their joy, " throw themselves into the muddy pools which are numerous about " the place. The victorious buffalo is led about the square the " people shouting with the greatest vehemence. * * * In the " evening the young men and women of the different winning " districts go in procession round the town dancing and singing, " the buffalo being with them."

A very common amusement amongst Burmans, rarer amongst Talaing and still rarer amongst Kareng, is a game of ball called *khyee-loon*. The ball is made of open wicker-work and is struck with the sole of the foot, the elbow or any part of the body except the toes and hands. There are no sides but half a dozen lads or men join and standing in a ring endeavour to keep the ball off the ground, any one near whom it descends striking it upwards.

Another game common amongst children is *goon-gnyeng-to*. Two, four, six or eight boys join and form equal sides and each puts in an equal number of the large flat seeds of a kind of creeper. These are placed on edge in a row about a diameter apart and another is spun at them close to the ground from a distance of five or six yards. The side that knocks down most wins; it is in fact a kind of game of nine-pins.

The musical instruments used at pwai, funerals and feasts have already been described. Besides these there are several others used singly by amateurs. The *pat-ta-ra*, or harmonicon, consists of flat strips of bamboo about one and a half inches wide placed side by side and suspended by two strings which pass from end to end of the row near the extremities of the bamboos and are themselves attached to a box the ends of which are higher than the

centre so that the top of the sides and the string of bamboos have the shape of a catenarian arch. The bamboos are struck with two sticks. The note is regulated by more or less thinning out the centre of the underside of each strip. The *tsoung*, or harp consists of thirteen silken strings stretched over a buffalo-hide sounding-board attached to a boat-shaped wooden case with a long curved handle. If the strings of a fiddle were arranged vertically and fastened a quarter of the way up the handle which itself was curved round forwards and the fiddle was in the shape of a boat a fairly good representation of the Burmese harp would be obtained. The instrument is tuned by tightening or loosening the curved handle by pushing the strings up or down, thus stretching or relaxing them, and when used is laid on the lap the handle lying on the left arm the right hand being passed over the strings. The *mee-gyoung* is a three-stringed guitar with the strings stretched over a hollow sounding-board shaped like a crocodile, whence the name; when played it is placed on the ground. It is tuned in the same way as an ordinary guitar.

Astrology and superstitions.

The Burmans, but more especially the Talaing, are exceedingly superstitious and hardly anything can be undertaken without the advice of an astrologer, or Poon-na or Be-deng-tsha-ra who, as we have seen, is called in to select the fortunate day and hour for all the important ceremonies of life. There are supposed to be eight planets and from these the days of the week have their names, Wednesday having a second planet, *Ra-hoo*, which rules from midday to midnight. Each planet has a special point of the compass. In drawing a horoscope the planets are thus arranged :—

Wednesday. *Ra-hoo.* North-west.	Friday. *Thouk-kya.* (Venus) North.	Sunday. *Ta-neng-ga-nwe.* (Sun) North-east.
Thursday. *Kya-tha-ba-de.* (Jupiter) West.		Monday. *Ta-neng-la.* (Moon) East.
Saturday. *Tsa-ne.* (Saturn) South-west.	Wednesday. *Bood-dha-hoo.* (Mercury) South.	Tuesday. *Eng-ga.* (Mars) South-east.

The four planets placed at the cardinal points, that is Venus, the Moon, Mercury and Jupiter, have a benign, the others, and

especially Ra-hoo, a malign influence. Having ascertained the day of birth and the age of the applicant the Be-deng-tsha-ra divides the age by eight and if there is no remainder the augury is taken from the planet presiding over the day of birth; if there be a remainder the astrologer, commencing with the planet of the day of birth, counts that remainder round the horoscope from left to right, that is following the course of the hands of a watch, and the house where the number finishes shews what will be the result of the enterprize.

Fortunes are told from an examination of the right hand of a man and of the left hand of a woman: a red palm signifies many friends; a black palm, misfortune; black lines, prudence; and if they reach the upper part, happiness; long fingers mean many daughters; short ones shew that the possessor is lascivious.

Talismans are much used, some worn round the neck, others fastened to the wrist: soldiers, dacoits and others often have some figure tattooed on them and the two former classes several small pieces of silver of the size of a two-anna piece or three-penny bit, only much thinner, let into the flesh under the skin in order to render themselves invulnerable.

When a man is about to build a house, and more especially a monastery, he resorts to the astrologers who guide him as to the favourable moment for commencing the work and instruct him as to the timber which he should choose. Posts of the same size at both ends are called "males"; those which are larger at the bottom "females"; if the centre is the larger part "neuters"; and those which are thicker at the top "giants". If a tree in falling is caught in the fork of another it is abandoned and if it falls clear but rebounds ever so little it is called "monkey wood". The inhabitant of a house built of male wood will never be unhappy, but if the wood is neuter he will invariably be miserable, and if gigantic he will die soon and unhappily. "By dividing into "ten compartments the two side-pieces of the stairs and observing "in which knots occur, we may also learn a man's fortune. If a "knot be found in the first compartment it is a sign that the "master of the house will be honoured by princes; if in the second "that he will abound in rice and in all kinds of provisions, but if "there be one in the fourth division then a son or a nephew or a "slave or an ox of the master will die; a knot in the sixth division "is a sign of richness in oxen or buffaloes; but one in the eighth "portends the death of his wife, and finally one in the tenth is "an augury of great possessions in gold and silver and such other "valuables."

The upper ends of the posts are always covered by a square of white cotton sheeting as these are the resting-places of the Nat or guardian spirit of the house, whilst amongst the Talaing a cocoanut with some pieces of red cloth hanging to it is strung up in the south part of the house as an offering to Meng-ma-ga-ree the guardian Nat. In almost every house at the end of the verandah are one or more water-pots with bunches of leaves or small branches in them. The water is replenished every month or so as an offering to the pagodas and if any member of the household is absent on a journey much oftener in order to secure success to the absentee.

When starting on a journey a bundle of plantains or a bunch of leaves is put on the cart or on the end of the boat to propitiate the Nat who might injure the travellers. In Upper Burma these are Byeng-doon, Sheng-gyee, Moung-meng-gyaw and Shwe-byeng-gnyee-noung and in the south Oo-yen-gyee.

The Talaing of the delta of the Irrawaddy have a curious custom connected with agriculture. Just before reaping commences the figure of a woman is made up with straw and a woman's garments, placed in a cart with quantities of cooked rice of the kind called Kouk-gnyeng, and driven round the fields to propitiate the Bhoom-ma-ra-za Nat. The rice is afterwards eaten by the boys of the village and the figure placed on the granary.

Witches and wizards are very generally believed in. When a man or woman is supposed to be bewitched a witch doctor is sent for. He ties a rope round the patient's neck and after repeating an incantation asks the witch supposed to be in the patient what it has come for, whatever answer the person supposed to be bewitched gives is taken as an answer by the witch and the request is complied with, the article wanted being put out on the road and left all night. Should the witch not depart stronger measures are resorted to and the unfortunate patient is unmercifully belaboured, or water mixed with chillies is forced into his or her eyes in the fond idea that it is the witch only that suffers; the groans and screams are welcome sounds for is it not the witch that is being shewn that it will be exceedingly unpleasant to remain? Amongst the Talaing if a person suddenly becomes sick careful enquiries are at once made as to where he has been and offerings of rice, plantains, etc., are deposited near the places, especially if he has been out in the forests. to propitiate any evil spirit that he may have unwittingly offended. Close to Doon-won in the Amherst district and between the inner walls and the moat of the old town are two wooden images supposed to be those of powerful demons which no one would pass without making some small offering of

rice or even merely a bunch of leaves, and there are many other places in the province thought to be the resort of malevolent Nat who must be propitiated.

In out-of-the-way places if a doctor cannot cure his patient he declares that he is possessed by a powerful spirit and a woman, generally a member of the family, dresses up fantastically in any way that she chooses and, to the sound of musical instruments, dances furiously in a hut or shed erected for the occasion. By degrees she pretends to become inspired and the evil spirit leaves the patient and enters her; whatever she now says is considered as the utterance of the demon and the directions that she gives are strictly followed. If this fails the doctors abandon their patient as the demon is too strong for them. The Kareng, who believe that every tree, every rock, every stream and every cataract has its spirit, are strong in their faith in witchcraft and amongst them the witch doctors are spiritualists who pretend to have communication with spirits. The late Dr. Mason relates a case in which a Kareng, supposed to have been bewitched, died of dropsy and those present at the *post mortem* examination exclaimed. "Before we only suspected it, but now we know he died from "witchcraft for there is the water that was put into him by "enchantment." *

Medical practitioners, medicines and diseases.

The Burmese doctors, of whom there are two schools, are ignorant in the extreme and are mere charlatans. One school, the professors of which are called *Dhat-tsha-ra* from *dhat*, an element, eschews drugs and trusts solely to diet, but the articles of food are prescribed as they are supposed to furnish the element, fire, earth, air or water, the deficiency of which is considered as the cause of the disease. The other school, the members of which are called *Bhien-daw-tsha-ra*, is by far the larger, and relies entirely on the exhibition of medicines. According to both the human body is composed of four elements.

"The hair, nails, teeth, skin, flesh sinews, bones, marrow, "cartilage, heart, liver, etc., in all twenty members, constitute the "*pa-hta-wie dhat*, or element earth. Bile, phlegm, pus, blood, "sweat, fat, tears, spittle, mucus, etc., in all twelve, constitute the "*a-paw dhat*, or element water. The processes of eating, drink-"ing, chewing and licking constitute the *te-zaw dhat*, or element "fire; wind, of which there are six kinds, constitutes the *wa-yaw* "*dhat*, or element air. *A-ka-tha*, the ether, is the fifth element, it "is not prominent in the medical philosophy of the Burmese; it "occupies the ear, the nostrils, the frontal sinuses, etc., etc.

* Mason's Burma, 2nd Edition, page 107.

"Sickness or disease is attributed, firstly, to *kan* or the influence of actions in a previous exitence; *tsiet*, the mind; *oo-doo*, seasons; and *a-ha-ra* food; and secondly to the preponderance or diminution or destruction of one or more elements or to the collision of two or more elements, in short to any disturbance of that natural or normal equilibrium of the elements which constitutes the state of health. Thus if sickness is diagnosed to to be attributable to *kan* medicine is withheld for a short time on the supposition that the ailment will effect its own cure on the theory of the *vis medicatrix naturæ*. If attributable to mind or to season or to food, drugs or diet according as to whether the practitioner is a Bhien-daw or a Dhat-tsha-ra are immediately prescribed. Great importance is attached to the day of the patient's birth, his age and the time he falls sick, from a belief that these influences combine to change the equilibrium of the elements of the body, no attention whatever being paid to the habits or temperament of the patient. So it generally happens that should two members of a family fall sick of the same complaint two entirely different methods of treatment are adopted. The first question asked a patient is his age and the day of his birth, and with these data the physician makes an elaborate calculation to determine which of the elements has diminished or increased or been destroyed. The time of the commencement of the patient's ailment is next taken into consideration and a second calculation is made to determine what particular member of the irregular element is the disturbing cause. The treatment then consists (*a*) in counteracting the morbid influence of the disturbing cause, and (*b*) in directing attention to the sickness itself under which the patient may be labouring. For instance if by calculation it is determined that the disturbing element in a case, say of ophthalmia, is *a-paw* or water, and that the constituent of the disturbing element is mucus, the patient will have a collyrium or ointment given to him to act on the symptoms exhibited, but at the same time he will be directed to swallow a certain drug, or to rub it on his tongue or palate, to counteract the morbid action of the mucus."*

In making a diagnosis the tongue may sometimes be examined but the condition of the different secreting organs is never taken into consideration.

If after a day or two the doctor is unsuccessful he is dismissed and another called in and it is not very uncommon for six or seven

* "The Burmese: what do they know of medicine?" By D. H. Cullimore, Residency Surgeon, Mandalay. Madras: Higginbotham, 1875.

to succeed each other, each giving his medicine, receiving his fee of a few annas and passing on, though this is not the usual practice. At last when the patient or his friends are tired of the application of inert remedies or if the doctor finds himself nonplussed a witch doctor is sent for.

The medicines used by the Bhien-daw-tsha-ra are barks, leaves, flowers, seeds, roots and a few simple minerals, whilst their prescriptions contain the most extraordinary mixtures and almost always stimulants. Opium and Indian hemp are used as sedatives; *aconitum napellus* as an aphrodisiac. The different spices are much in favour. "The natural orders Labiatæ "Piperaceæ, and Myristaceæ are, in combination, frequently laid "under contribution. Purgative plants of the Euphorbiaceæ and "Leguminosæ are common. The inorganic medicines in use "are colomel, chloride of ammonium, borax, nitrate of potash, "sulphur, green, blue and white vitriols, arsenic, vegetable soot "and lastly petroleum or earth-oil. Calomel is the drug *par* "*excellence* for syphilis; borax and nitrate of potash are used as "with us. Arsenic is their great remedy for asthma."* The exudation from the *Melanorrhœa usitatissima* slowly boiled with an equal quantity of honey and allowed to cool is given, followed by a dose of castor-oil, as an anthelmintic in doses, for adults, of the equivalent of two or three table-spoonsfull, as is a fungus found growing at the roots of bamboos. Croton is used as a purgative, and to counteract the effect of an excessive dose the juice of the sour lime is administered. A decoction of lemon-grass is considered as of great efficacy in colic. The seeds of the *Entada pusætha* are used as a febrifuge, as is the bark of the *Strychnos nux vomica* by the Kareng. The roots of the *Leea macrophylla* are employed to stop the bleeding of wounds, the leaves of the *Sesbania ægyptiaca* for poultices to promote suppuration, the oil of the *Pongamia glabra* is applied in several eruptive diseases and the leaves of the *Pistia stratiotes* are employed as a poultice for hemorrhoids. But these are only a few of the drugs used; Dr. Waring of the Bengal Medical Service relates that he was once presented with a nostrum consisting of a green powder which he was informed was of a great value, containing no less than one hundred and sixty different ingredients.† The nastier the taste, the larger the dose and the more griping the remedy employed the more highly it is esteemed.

Besides the Dhat-tsha-ra and the Bhien-daw-tsha-ra there are specialists who treat certain diseases such as syphilis, snake-doctors, accoucheurs (generally women) and shampooers. Shampooing is

* The Burmese: what do they know of medicine?
† Indian Annals of Medical Science, 1850, p. 106.

almost always employed in every disease in addition to the prescriptions of the doctor.

The Burmese have not the faintest idea of anatomy. "They "use no knife or instrument of any kind; all congenital and "acquired deformities are left to nature, and even abscesses are "never opened. Amputation is never performed"*, except as a punishment in Upper Burma: to blood-letting they have the strongest objection.

The principal diseases from which the inhabitants suffer are small-pox, fevers, and disorders of the digestive organs, whilst cholera in its most acute form occasionally ravages whole tracts of country: From venereal diseases they are by no means free. Inoculation is extensively practiced and to vaccination there is a very general objection. According to Father Sangermano "before "the conquest of Arakan the small-pox made great ravages among "the poorer sort of the Burmese, not so much, perhaps, by "reason of its own malignity as from the prejudices that hindered "proper remedies being applied for its cure. For, among other "things, there was the custom of shutting up all who were attacked "by it in places remote from all assistance, sometimes even in "the uninhabited parts of the empire, to avoid contagion. But "the Arakanese slaves taken in the wars, having seen inoculation "practiced with success in their own country, have introduced it "among their conquerors."† The fevers if properly treated are not primarily fatal, very few of those who attend the dispensaries dying, whereas dysentery and diarrhœa though less common are much more serious. The registration of deaths is far from accurate, but the number of deaths according to diseases during the last three years for which information is available are given in the following table:—

Year.	Small-pox.	Fevers.	Bowel-complaints.	Wounds and accidents.	Snake-bites or killed by wild beasts.	All other causes.a	Total.	Remarks.
								a of which—
1876 ...	1,885	24,728	5,269	280	157	10,682	42,401	76 { Cholera ... 3,678; Suicide ... 49
1877 ...	1,280	26,001	6,879	268	205	16,686	51,014	77 { Cholera ... 7,276; Suicide ... 79
1878 ...	1,406	28,821	4,640	242	179	16,009	51,297	78 { Cholera ... 6,759; Suicide ... 88

* "The Burmese: what do they know of medicine?" By D. H. Cullimore, Residency Surgeon, Mandalay. Madras: Higginbotham, 1875.

† Description of the Burmese Empire, p. 181.

The returns are submitted by the village registrars who have no knowledge of medicine and, as justly remarked in the Provincial Administration Report for 1872-73 " Burmans call every disease fever " if attended with a hot skin, as well as the sequelæ of fevers long " after the original disease has ceased. In this way deaths from " diarrhœa, dysentery, pneumonia and other diseases of the stomach, " bowels and lungs are often returned as having been from fevers."

Dress.

The dress of Burmese and Talaing is very simple. The men wear a cotton or silk kilt and plaid, both in one, knotted round the middle and hanging down to the knee, about six or eight yards long, the portion which they do not require to go round the body gathered together and tucked in to the waist in front, so as to hang down nearly to the feet, or thrown over the shoulder like a plaid. These are generally checked or striped and in some cases of most elaborate patterns requiring as many as twenty or more shuttles for their weaving. The body is covered with a short white cotton or coloured cloth jacket with long, tight sleeves in the former, or sometimes loose open 'shoulder-of-mutton' sleeves in the latter, or in the case of the elders or richer persons, especially when they pay a visit to a person of quality or when they go to a pagoda or to a monastery, with a long white jacket open in front and reaching to the knees.

The dress of the women is also a piece of striped cotton or silk of a nearly square form which is knotted round the middle and folded tightly over the bosom ; it is open in front so that in walking the legs and part of the thigh are exposed : over this is worn a white jacket open in front, and often over the shoulders a coloured muslin or silk handkerchief.

Many of these cloths are woven in the country but the Manchester cotton and silk piece-goods are gradually supplanting the native product, notwithstanding the better and richer quality of the latter.

The loom resembles the old-fashioned hand-loom, the threads of the warp are worked up and down by the feet pressing alternately upon treddles and the woof shuttles are thrown across by hand.

Both men and women wear sandals, or in some cases even English slippers and in the case of the men shoes. Both sexes take great care of their hair, keeping it long and wound into a knot, the men on the top the women at the back of the head. The practice, once almost universal, of plucking out the rudiments of beard and moustache directly they make their appearance is now slowly dying out. The women, who never wear any head-dress, often add to the size of the knot by false hair. The men wear a gaudy silk handkerchief loosely wound round the head or, in the case of elders, a rolled fillet of muslin.

Smoking is practiced by both men and women, and children commence at a very early age; sometimes they may be seen at the breast and immediately afterwards inhaling from their mother's or nurse's cigar. The ordinary Burman cigar consists of chopped tobacco leaves mixed with portions of the woody part of the tobacco plant or of Oop-nai (*Euphorbia sp.*) rolled up in a leaf of the Thanat (*Cordia sp.*), sometimes the wood and tobacco are boiled with coarse sugar, allowed to dry, and then rolled up. These cigars are from six to eight inches long and about an inch broad at one end, tapering to from one-half to one-quarter of an inch in diameter at the other. The finer kinds are rolled up in the thin inner coating of the bark of the branches of the betel tree.

Another favourite practice is betel chewing. A small piece of betel nut, of tobacco and of slaked lime made into a thick paste and sometimes tinted salmon-colour, are rolled up in a leaf of the betel vine and the whole placed in the side of the mouth, much as a sailor's quid of tobacco is placed, and occasionally pressed by the teeth; this acts as a stimulant to the salivary glands and vast quantities of saliva, reddened by the action of the drugs, are ejected from the mouth.

Dwellings and food.

The houses are usually marquee-shaped and consist of one or more rooms with the floor raised on posts seven or eight feet from the ground and another in front much lower and forming a kind of veranda, sometimes open in front. The poorer classes use posts of common wood or even of bamboo and make their walls of mats; the richer use Pyeng-ga-do (*Xylia dolabriformis*) or some other durable and more expensive timber and planked walls. The roof is sometimes composed of small, flat tiles but more generally of thatch; in some places of dhanee leaves soaked in salt water to protect them from the ravages of insects; in others of wa-khat, a kind of flat tile six feet long by two feet broad made of coarse bamboo matting; in others of bamboos split in half longitudinally and, with the knots removed, placed side by side and touching each other, with the concave side upwards, extending from the ridge to the eaves, over these is placed another series with the concave side downwards so that the roof looks like one of elongated pan tiles; elsewhere of the leaves of the Tsa-loo (*Licuala peltata*) or of the Taw-htan (*Livistona speciosa*): in some of the larger towns shingles are being introduced. The flooring consists of planking in the better houses, and of whole bamboos laid side by side on bamboo cross-beams and tied with cane in the poorer.

The furniture consists of mats and beds with hard square pillows, in some cases cots are used and even chairs and tables,

whilst in the towns many European articles have found their way into ordinary use and it is by no means uncommon to find looking-glasses, candlesticks with shades, kerosine lamps, clocks, table-cloths, long-armed easy chairs and other such articles. In the country the fireplace during the rains is in the house and as the flooring is of bamboos it usually consists of a box about two feet square and six inches deep filled with earth or ashes; in the dry season the cooking is often carried on on the ground outside. In the better houses in towns there is now often a permanent covered-in cook-house. The food is simple and the cooking utensils and dishes few: two or three earthen pots with covers, a flat wooden stirrer to stir up the rice or curry, a jar of water, a ladle—half a cocoanut with a handle in it—a *byat* or flat round dish of wood well lacquered about one foot six inches in diameter, a few cups without handles and one or two tin spoons complete the kitchen and dining-room "service".

There are ordinarily two meals a day, one at about eight in the morning and the other at about five in the evening. The staple article of food is plain boiled rice, with it is taken a kind of soup or thin curry of vegetables, chillies and onions, a pinch or two of fish-paste, a little salt, a little oil and, if it can be afforded, fish or meat; often fried salt fish is added to the meal. As a condiment is used a mixture of fish-paste, chillies and onions fried together. The rice is placed in the flat lacquered dish called *byat* and the soup and condiment are in small cups and the whole family eat together. Cleaned rice can be bought in most bazaars and rice-husking has in some parts of the country near large towns become a regular trade but over by far the larger part of the country the rice for the family use is husked by the females of the family as it is wanted, the stock of unhusked grain being kept in granaries adjoining the house. The grain is first twice milled by hand. The mill consists of a solid cylinder of wood about two feet in diameter, the upper surface roughened by radiating lines a quarter of an inch deep being cut in it; on this works another cylinder, the lower surface similarly roughened, with an opening through it in the shape of an inverted truncated cone: to one side of this upper piece is loosely fastened the end of a long pole and by working this backwards and forwards the upper cylinder is made to revolve and to husk the grain which is passed in at the top and comes out between the two portions of the mill. The rice is then, winnowed either by throwing it up into the air when the lighter husk is blown away or in a hand-worked winnowing machine, an European invention of late introduction into Burma. The inner pellicle has now to be removed and this

is done by pounding, either by hand with a long, heavy, massive pestle in a large wooden mortar, or in a somewhat similar mortar let into the ground; in the latter case the pestle consists of a short but thick bit of wood let into a long one near the end and at right angles; this long one is supported on two low uprights near the end furthest from the mortar in such a way that that the end of the pestle rests in the mortar; one or more persons by standing on the further end depress it into a hollow made for it in the ground and raise the other end and as they step off the pestle falls with great force on to the rice which has been placed in the mortar; this alternate stepping on to and off the "pestle-bar" continues until the work is finished.

Horology. There are five different eras known in Burmese chronology:—

(1)—The Kaw-za era; which, after lasting for 8,650 years, was abolished by the grandfather of Gaudama, Bhodaw Een-tsa-na, in B. C. 691.

(2)—Bhodaw Een-tsa-na's era; which lasted till Gaudama's death, in B. C. 543, or 148 years only.

(3)—The religious era; which was current until A. D. 82.

(4)—King Tha-moon-da-rit's era; established in A. D. 82 by Tha-moon-da-rit of Prome, which lasted for 562 years, until A. D. 639.

(5)—The present era; established in A. D. 639 by Poop-pa-tsaw Rahan who usurped the throne of Pagan.

The ordinary year, which commences about April, consists of twelve lunar months of twenty-nine and thirty days alternately, and every third year a thirteenth is intercalated between the fourth and fifth. These are—

Ta-goo	.. .. about April.	Tha-deng-gyoot	.. about October.
Ka-tshoon	.. .. ,, May.	Ta-tshoung-moon	.. ,, November.
Na-yoon	.. .. ,, June.	Nat-daw	.. ,, December.
Wa-tsho	.. .. ,, July.	Pya-tho	.. ,, January.
Doo-tie-ya Wa-tsho (intercalated every third year).		Ta-bo-dwai	.. ,, February.
Wa-goung	.. .. about August.	Ta-boung	.. ,, March.
Taw-tha-leng	.. .. ,, September.		

Each month is divided into two parts; the waxing, which lasts from the 1st to the 15th, and the waning, which lasts from the 16th to the end. The year is further divided into periods of seven days which follow each other; the days are named after seven of the eight planets, *viz.*, Ta-neng-ga-nwe, Ta-neng-la, Eng-ga, Bood-dha-hoo, Kya-tha-ba-de, Thouk-kya, Tsa-ne (Sun's day, Moons' day, Mars' day, Mercury's day, Jupiter's day, Venus' day and Saturn's day). The day and the night are each divided into four periods—from 6 to 9, 9 to 12, 12 to 3 and 3 to 6. A day and a

night are divided into sixty "hours" and these again each into sixty *bee-za-na*, each bee-za-na into six *pran*, each pran into ten *kha-ra*, each kha-ra into twelve *kha-na*, and each kha-na into four *na-ra*; the na-ra lasts as long as it would take to wink the eye ten times: except for astrological purposes divisions of na-ra are seldom used. In towns and in places where the English hours are struck the people have readily adopted them but in remoter places the time is sometimes indicated by a reference to the position of the sun or moon as "in the morning when the sun was a fathom above the horizon"; sometimes still more roughly as "when the sun was a tari tree's height", "before midnight", "after midday", "when children go to bed", "when lights are lighted", "when grown up persons go to bed", "before the sky was light", "at breakfast-time", "at dinner-time". If a period has to be spoken of it is described as "the chewing of one mouthful of betel" or about ten minutes, "the time it would take to boil a pot of rice", or about twenty minutes.

Distances are described as "a call" or about two hundred yards, "the sound of a gunshot" or half a mile, a "stone's throw" or from fifty to sixty yards, "breakfast distance" that is as far as a man could walk between sunrise and breakfast-time *i.e.*, eight to nine o'clock, as a "mat" *i.e.* a quarter of a "taing" or half a mile, a "moo" or the eighth of a taing, nga-moo (literally five great moo) or half a "taing."

Weights and measures. The weights in use are:—

1 Kyeng-rwe	..	..	1 seed of the *abrus precatorius*.
2 Do. ..	..	..	1 Rwe-gyee.
4 Rwe-gyee..	..	..	1 Pai-gyee.
2 Pai-gyee ..	..	..	1 Moo.
2 Moo ..	..	..	1 Mat.
4 Mat ..	..	..	1 Kyat.
100 Kyat ..	..	..	1 Piet-tha (3·652 lbs. Avoirdupois.)

The measures of capacity depend upon the "teng" or basket which not only varies in almost every district but in different parts of the same district as now constituted; it is, however, the same throughout each of the old Burman territorial divisions, though not always throughout the same class of divisions, *e. g.* in some places it differed in different myo or townships, in others in different governorships. As the teng is the standard and the sub-divisions are the same these necessarily vary also. Each teng is thus sub-divided:—

1 Teng	..	..	..	4 Tsiet.
1 Tsiet	..	..	..	4 Pyee.
1 Pyee	..	..	..	2 Khwet.
1 Khwet	..	..	..	2 Tsa-lay.
1 Tsa-lay	..	..	..	2 La-may.
1 La-may	..	..	..	2 La-myek.
1 La-myek	..	..	..	2 La-moo.

An endeavour has been made to introduce a standard "basket" containing 2,218·19 cubic inches but it has not been very successful for want of legislative authority, and the disturbance to trade which would be caused by any such enforced alteration in the customary uses has prevented any application to the legislature. The differences in the various local uses seriously interfere with statistical enquiries except to those conversant with these differences. The Akyab basket contains about 23 lbs. of rice in the husk, the Bassein basket about 51 lbs., the Maulmain basket about 48 lbs. and the Rangoon basket from about 48 lbs. to about 50 lbs.

The measures of length are :—

1	Lek-thit	1 finger-breadth.
8	Do.	1 Maik (or span).
3	Maik	1 Toung (cubit—19½ inches).
4	Toung	1 Lan (fathom).
7	Do.	1 Ta.
1,000	Ta	1 Taing (nearly two English miles).
6,400	Do.	1 Yoo-za-na.

The rupee (deng-ga, literally a circular piece of metal, stamped, whether for a coin or a medal) is in universal use and the names given to fractions of a rupee are derived from the measures of weight :—pai, one anna ; moo, two annas ; mat, four annas ; nga-moo, eight annas ; thoon-mat, twelve annas ; gyat-moo-deng (rupee less two annas), fourteen annas ; gyat a rupee.

Festivals.

All the public festivals are connected with religion. The commencement of the new year is fixed by the astronomers attached to the Court at Mandalay and due notice is given through the hpoon-gyee and others. The moment the new year opens three guns are fired as a signal and the feast commences : water is presented to the hpoon-gyee and to the pagodas and images of Gaudama, which are washed, and all except pregnant women join in the merriment. It is water everywhere and no one is allowed to escape without a ducking. In the larger towns, where there are many Europeans who object to being doused with water for no ostensible object, the festivities are confined to the Burmans and other natives of the East, for Hindoos and Mussalmans are quite willing to join in the fun except perhaps the richer and staider, but elsewhere no one gets off scot-free. After three days saturnalia the festival ends.

Lent commences with the full moon of Wa-tsho and ends on the full moon of Tha-deng-gyoot. It is not a season of fasting but of stricter observation of religious duties. Some of the hpoon-gyee retire into small huts in the forest, where they can meditate with less danger of interruption, and all laymen are more regular in their attendance at the weekly religious meetings, which in other ways

do not differ from those held during the rest of the year. These days are the first and eighth of the waxing and the first and eighth of the waning of the moon. The evening before one or more old men, as a voluntary work of merit, go round the town or village beating a triangular gong slung to a stick which they carry across the shoulder a lamp depending from the other end. The more devout go that evening to the open floored sheds called "zayat" erected for this purpose in the neighbourhood of some pagoda or monastery and sleep there; early in the morning they cook food for the hpoon-gyee and when this is ready notice is sent to the monks who come in single file; in the meanwhile the congregation has been increased by those who, dressed in fine clothes, have joined in the morning. Sitting behind their fans and facing the people the monks repeat sentences in honour of Gaudama and then the senior intones a litany the responses being taken up by the people kneeling with joined hands raised, when this is over the monks return as they came and their food is sent after them. The laymen then have their breakfasts and remain all day, generally sleeping or gossiping, sometimes listening to an elder reading out portions of the history of Gaudama's lives.

At the end of the Lent the pagodas and the whole town or village are illuminated for three nights by numerous small earthenware cups filled with oil and containing a lighted wick. At the same time vast numbers of other small lamps are fastened to floats and set a drift in the river and, carried away by the stream, form long lines of light for several hours until the oil is exhausted or the flame is blown out by the wind or the little cup gets accidentally upset. This is in honour of one Sheng Oo-pa-goot who in a previous existence mischievously carried off the clothes of a bather and was in consequence condemned to remain naked in the water till the arrival of the next Booddha when he will be admitted to the Theng-gha and become a Rahanda.

At the full-moon of Ta-tshoung-moon there is a festival called Ta-wa-dien-tha which, however, is not kept up everywhere with the same pomp and large assemblage of spectators. It is commemorative of Gaudama's supposed ascent to the region of the Nat to preach the law to his mother. A platform is built on tall posts and this is reached by two inclined planes. On the first day an image of Gaudama is taken up from a small building at the foot of one of the slopes and is placed in a covered stage half way up; this represents the Oo-gan-daw hill where he rested; the next day it is taken to the top, the third day it is brought down the slope on the other side to a small building which symbolizes the Niek-bhan monastery where Gaudama arrived and

received the usual offerings when he came down. Numerous presents too are now made the hpoon-gyee having first been carried about attached to a bamboo frame-work, the whole looking somewhat like an exaggerated Christmas tree.

Several pagodas have special festivals, notably the Shwe Dagon in Rangoon, the Shwe-hmaw-daw in Pegu, the Kyaik-kouk, near Syriam, the Shwe Tshan-daw at Prome, the Shwe-nat-toung also near Prome, the Kyaik-htee-yo near Tsit-toung, the An-daw, Nan-daw and Tshan-daw at Sandoway, the great Tha-htoon pagoda, and several others in Tavoy, Toung-ngoo and elsewhere. They are all much the same, crowds collect from vast distances and the scene is more like a fair than a religious assemblage, huts and booths being erected where goods are offered for sale and pwai performed, the multitude dividing its time between rejoicing and reciting sentences at the pagoda. In some cases, as at Sandoway, feasts are held three times a year, in others only once, and in some cases a day or more is spent at each of several pagodas, as at the An-daw, Nan-daw and Tshan-daw in Sandoway, whilst in others several days are spent at one pagoda, as at the Shwe-nat-toung and Kyaik-htee-yo.

CHAPTER XIII.

ARTS, MANUFACTURES, AGRICULTURE, AND PRICES.

WITH the exception of rice-cleaning and timber-sawing, and it is only by giving a broad meaning to the word that these can be included, none of the manufactures of the province are of any great importance or afford employment to large numbers of people.

Weaving.

Weaving is carried on in almost every house and though not to so great an extent in the large towns as in the country yet even there it is impossible in the day time to walk very far, unless in some quarter inhabited by strangers and sojourners in the land, without hearing the unmistakeable clack clack, as some young woman deftly works the treddle and throws the shuttle. The machine is exceedingly simple and is roughly made and very closely resembles the hand-machine formerly used in Europe. The alternate threads of the warp are raised and lowered by the treddle.

The articles made are of cotton or silk and consist principally of (*a*) *poot-tsho*, or waist-cloths, fifteen feet long and three feet four inches broad, of different colours, worn by the men; (*b*) *hta-mien*, worn by women, a single sheet of two portions sewn together, four and a half feet long by five and a quarter broad; (*c*) silk-pieces for making jackets; (*d*) *teng-dien* or coverlets, always of cotton; and (*e*) *tsoung*, or thick sheets. Formerly the cotton goods were everywhere made from home-grown cotton, that is cotton grown in Burma generally, as the *tsoung* now generally are, but the enormously increased facilities for sea-borne trade, the establishment of markets in all the large towns, and to some extent perhaps the decrease in the cultivation of the cotton plant, due to the great demand for rice, have led to the extensive use of imported twist and yarn (lbs. 5,640,016 in 1878-79) for weaving purposes, and to the use of European piece-goods 42,956,354* yards, in 1878-79) for wear. English silks have to a great extent taken the place of those of home manufacture (5,330,653 yards were imported in 1878-79) but the latter are still preferred by no small number, and their manufacture gives employment to many especially in the town of Prome. The silk used is partly imported (lbs. 289,052 in 1878-79) and partly home-grown. The patterns are

* Excluding 'handkerchiefs and shawls in the piece' of which 1,085,749 yards were imported during the year.

usually of gay colours and sometimes exceedingly intricate requiring twenty-four or more shuttles, and a poot-tsho of this kind will fetch nearly Rs. 300. The favourite designs are checks or zig-zag lines of various colours and shades, green, red and yellow predominating; blue is not a favourite and dark (royal) blue and black are avoided. The articles woven, both cotton and silk, are rough but strong, and last longer than the flimsy, and in some cases adulterated, articles imported, which are, however, more showy and cheaper and are sought after especially by the younger generation and by townspeople who want to shew off with as little expense as possible.

The best cloths are made from imported silk which is more expensive than the native-grown. The weavers usually buy the silk raw, wind the threads off clear, twist them by means of a wheel and make the resulting thread into hanks; these they then boil in soap-and-water and dye of the desired colour, after which they reel it off again: these operations for a viss (lbs. 3·65) of silk take fifteen, ten, two, one, five and one day respectively, and twenty-one days more are occupied in weaving it into a saleable fabric. This quantity would make five ordinary poot-tsho or men's waist-cloths. A woman's dress is woven in two parts by different people. One viss of silk will produce thirty centres of such dresses each about four feet six inches long.

"The cotton-cleaning machine is a simple and not very "effective apparatus. It consists of a rough frame-work of four "posts, a bamboo pedal, a fly-wheel, and two cylinders placed "close to one another, the upper one being a thin one of iron and "the lower somewhat larger of wood. The bamboo pedal is "attached by a string to the fly-wheel, and the wooden cylinder "has a handle at the opposite end to the fly-wheel. The operator, "standing in front of the apparatus, with one foot works the pedal, "which communicates a rapid motion to the fly-wheel, and thence "to the iron cylinder, with one hand he turns the handle of the "wooden cylinder and with the other he feeds the machine, insert-"ing small quantities of cotton between the cylinders which catch "it up and whilst the wool passes through between the cylinders "the seed, which is too large to pass, is separated from the wool "and left behind."* The two cylinders work in an opposite and inward direction, the upper one revolving towards and the lower one from the cleaner. "With this apparatus one operator will "clean about 12 viss (lbs. 43·80) of raw cotton in a day turning

* Statistical and historical account of the district of Thayet, by Colonel H. A. Browne. Rangoon: 1871, p. 88.

"out 4½ viss (lbs. 16·40) of cleaned cotton."* The out-turn necessarily varies according to the kind and quality of the raw cotton.

When the home-made cotton is used it is spun into thread with a spool and wheel in much the same way as used to be done in Europe, and is dyed in the same way as silk *(See post)*.

According to the census of 1872 10,391 persons were engaged in cotton-spinning and weaving as a trade; but in another place in the returns weavers, spinners and cleaners of cotton goods are shewn as numbering 8,882 only.

Silk breeding.

Silk breeding is carried on principally in the hilly parts of Toung-ngoo, Shwe-gyeng, Thayet, Prome and Tharrawaddy, and a little in the northern part of Rangoon, and everywhere in much the same way. It is confined to the Yabaing† or Zabaing who are held to be of Burmese stock but who seem to have become, from their profession as silk-worm cultivators and from their consequent isolation, considered by some as a distinct tribe. In 1870 Colonel Horace A. Browne, than whom few have a greater acquaintance with the people and their customs, wrote a report on seri-culture from which the following account is taken :—"Neither the worm nor the mul-"berry are indigenous to the province but were, most probably, "imported from China by the valley of the Irrawaddy and not "across the hills from India. The Burmese mulberry, which has "not been identified by any competent botanist but which has "been pronounced not to be the *Morus Indica*, is a thin, lanky "shrub throwing out several vertical shoots from near the ground "and growing to a height of eight or ten feet. It will not flower "and is therefore propagated by cuttings. After about three years "a plantation ceases to bear good and succulent leaves and is then "abandoned or the plants are uprooted. The plant is grown "principally on the sides of hills but a small quantity is planted "in alluvial soil by the margins of mountain streams, though the "silk produced in such localities is inferior to that obtained where "the mulberry is grown on high land. Should the mulberry "leaves fail the larvæ are fed on the *Brousonettia papyrifera*, but "the silk then produced is comparatively worthless. The silk is "of a very rough and inferior description but well suited for the "silks made on the ordinary loom of the country.

"All the processes of breeding the worm and winding the silk "are carried on in the ordinary smoke-begrimed and dirty bamboo

* Statistical and historical account of the district of Thayet, by Colonel H. A. Browne. Rangoon : 1874, p. 88.

† See *ante*, p. 183.

" houses of the people. The plant consists of a set of flat trays
" with slightly-raised edges, from two to four feet in diameter
" made of strips of bamboo plaited; some neatly-made circlets of
" palm-leaves three or four inches in diameter somewhat like the
" lower part of an exaggerated pill-box with the bottom knocked
" out; some strips of coarse cotton cloth; a common cooking-pot;
" a small bamboo reel; and a two-pronged fork. As soon as the
" females are impregnated the males are thrown away and the
" females are placed within the palm-leaf circlets resting on a
" sheet of coarse cotton cloth two or three feet square to which
" the eggs adhere and which thus become covered with circular
" cartoons of eggs. When the moths have all laid their eggs,
" which takes about a day, they are thrown away and the pieces
" of cloth are wrapped up and left to themselves. In about eight
" days the larvæ appear and the cloth being opened are swept
" with a feather on to a tray. The produce of one circular cartoon
" will, when the worms are full-grown, more than fill a large tray
" two or three feet in diameter. About twelve hours after they
" are hatched the worms are fed with finely-chopped pieces of
" the tenderest mulberry leaves and are so fed for four or five days,
" when they shed their skins. After this change they require
" plenty of strong leaves and beyond being supplied with food
" they receive little or no care. No attention is paid to cleanli-
" ness the frass and remnants of leaves being left in the tray;
" the larvæ bear very rough handling being scraped up and
" tossed about in handfuls when they are moved. Their only
" enemy is the icheneumon fly, and when such a fly has deposited
" its eggs in the body of a larva, which soon gives signs of what
" has occurred, the worm is thrown away. To protect the larvæ
" the trays are generally kept covered. After thirty days the
" larvæ, which have then moulted four times, are ready to spin
" their cocoons. The ripe ones are picked out by hand and
" thrown in heaps into a small tray in which they are conveyed to
" the 'cocooning tray'. This is three or four feet in diameter
" and within it is a ribbon of plaited bamboo, a couple of inches
" wide, wound round and round in a spiral with its edge on the
" tray. The larvæ are taken up in handfuls and scattered over
" the tray with as little care as if they were so many grains of
" corn. They attach their cocoons, which are completed in
" twenty-four hours, to the spiral. The cocoons are torn off the
" plaited bamboo ribbon and thrown into baskets and two or three
" days later are placed in a pot to simmer in water over a slow fire.
" Above the pot are placed a pair of cross-sticks from which a
" bamboo reel is suspended and beside the pot is a wooden cylinder

" turning on a pivot. Some filaments of silk are caught and drawn " out of the pot, run over the bamboo reel and fastened to the " cylinder. The reeler with an iron fork in one hand and the " handle of the cylinder in the other keeps catching up the " filaments in the pot with the fork and reeling them on to the " cylinder. The thread produced is coarse and dirty and mixed " with bits of pupæ and other refuse all of which go with the silk on " to the cylinder. When the silk is exhausted from the pot the " larvæ are taken out and fried in oil for the dinner of the house- " hold.

" The cocoons left to produce the imagines are ready in about " eight days. As the moths emerge they are put in large covered " trays for a day that the males may fecundate the females, when " the males are thrown away, and the process is again gone " through. The cocoons from which the moths emerge are not " thrown away, but a coarser and cheaper silk is spun from " them."

According to the census returns of 1872 silk-producing gave occupation to 4,245 persons of whom 3,211 were in Pegu. Nothing is known of the time of the introduction of the worm and the mulberry; both are supposed to have been introduced from China *viâ* the valley of the Irrawaddy.

Dyeing.

The only colours in general use are white, light-blue, green, orange, yellow and red of different shades, except amongst Shan, Kareng and Khyeng, who use dark-blue and black also. The thread to be cleaned or dyed is well boiled in lye, and if it is to be used white, is beaten against a stone or a slab of wood. If it is to be dyed *yellow* it is put into a boiling decoction of saffron and stirred about for half an hour and then washed several times in cold water until the water remains untinged and is then dried. A *green* colour is given by dipping the thread already dyed yellow into a boiling decoction of the leaves and twigs of the creeping Mai-nway (*Marsdenia tinctoria*) and wringing it out. For *orange* the small seeds of the Thie-deng (*Bixa orrellana*) are rubbed between the palms in cold water and removed, and the thread being placed in the coloured water, the whole is boiled and the silk is wrung out and well beaten. To dye *red* stick-lac is pounded and the stick and dirt removed and the powder boiled in water and the thread is dipped into this. In some parts of the country other dyes are used: *Diospyros mollis*, *Terminalia chebula* and *Jatropha curcas* for black; *Ruellia Indigofera*, *Indigofera tinctoria* and a kind of wild indigo for blue, and with these the bark of a kind of *Eugenia* is used as a mordant. The fruit of the tamarind, the wood of the *Adenanthera pavona* and of the *Melanorrhœa usitatissima* yield red as do the

celebrated Sappan wood (*Cæsalpinia sappan*) found in Tavoy, the *Rottleria tinctoria* (capsules and root) and the roots of the *Morinda* (much used by the Kareng in the south). In Tavoy the bark of a *Kandelia* is used as a mordant with red dyes. The safflower gives yellow and mixed with other ingredients reds, whilst yellows of different shades are obtained rom the wood of the jack (*Artocarpus integrifolia*), the root of a *Psychotria*, the bark of a species of *Garcinia*, the flowers of the Buteas and the leaves of the *Memecylon*.

Lac.

Though lac appears amongst the exportations from the province, and in no small quantities (1,335 cwt. in 1877-78), yet by far the greater portion of this is imported from Burma and the Shan States. In 1874 the Forest Department commenced the cultivation and imported insects from the north, and in 1876 the lac nurseries at Ma-ga-ree near Rangoon were formally declared to have been successful but the success was short-lived. The principal market is Calcutta.

Cutch.

Considerable quantities of cutch, used for dyeing and tanning principally for the former, are annually exported, but a good deal of it is prepared in Upper Burma though the Pegu article is the better. It is manufactured chiefly in Thayet, Prome and Henzada (Tharrawaddy). Three men generally work together, one cutting down the trees (Sha or *Acacia catechu*) and driving the buffaloes that drag them to the site of the furnace, one clearing off the sap-wood and cutting the heart-wood into chips, and the third attending to the fires. The chips are put into four-gallon cauldrons which are filled up with water and the whole is boiled for twelve hours. When the water is reduced to one half the chips are taken out and the liquid placed in large iron pans and again boiled and stirred till it attains the consistency of syrup ; the pans are then taken off the fire and the stirring continued till the mass is cool when it is taken out and spread on leaves, arranged in a wooden frame, and left for the night ; in the morning it is dry and ready to be cut up into pieces for the market. The chips are boiled down twice, but there is not much extracted by the second boiling. There was formerly no restriction on the felling of the trees and the supply was getting exhausted, now no tree can be felled without permission and a fee of Rs. 5 is charged for each cauldron used.

Salt.

Salt is made all along the coast from Akyab to Mergui, but in Pegu especially it is being driven out of the market by the imported article, whilst, curiously enough, in the south and centre of Tenasserim it holds its own. The rate of duty on the manufacture has not been altered and a comparison of the gross amount levied during the last seven years

will give some idea of the extent to which the manufacture has fluctuated. By far the greatest fluctuations were in Pegu.

Year.	Duty levied.
	Rs.
1871-72	54,935
1872-73	24,762
1873-74	65,701
1874-75	51,642
1875-76	45,569
1876-77	49,482
1877-78	57,399

There are two methods followed in salt-making depending on whether sea-water or merely brackish water is used. In the former a site having been selected a patch, sometimes an acre in extent, is cleared and left till the next season when all shrubs and grass which may have sprung up are taken out and the whole carefully levelled; round this a small embankment is raised and in February the sea-water is let in and allowed to evaporate; in March the slush is scraped off and put on a filter and salt-water poured on it. This filter consists of a frame-work about fifteen feet long, five wide and one and half feet deep, raised three feet from the ground on small supports; the bottom is made of rough poles, about two inches in diameter, laid side by side and covered by a mat made of a wild creeper over which is put coarse cloth. Under the filter is a standing frame-work of palm leaves which conducts the filtered brine into a trough and thus to a reservoir some six feet deep dug near the furnace. As long as a grain of boiled rice will float the filtering process is continued but no longer. The boiling is continued day and night, the iron pans being cleared every twelve hours, when the contents have evaporated to dryness, and refilled from the reservoir.

In the other method, which is adopted further inland and in places such as the An-gyee township in Rangoon and Tha-htoon in Amherst where the soil is strongly impregnated with salt so that the water a few feet below the surface is brackish, the tract cleared is surrounded by an embankment and divided into compartments by others. If it can be managed each of these is lower than the previous one. The soil is ploughed up to a depth of eight or nine inches and thoroughly pulverized; the water is then brought in by a trough from the stream and run into all the compartments and left to dry. Another supply of brackish water is now let in to the first compartment from which it runs to the second and so on. This may be repeated. The water is then let out from the last compartment into a tank, sometimes as large as forty by fifty by five feet, and the water from the last but one follows into the last,

and then into the tank and so on. The same process is repeated until the tanks are full or the workers consider that they have enough. From the tanks the water is carried to the furnace and placed in large and very thick earthenware jars under which a fire is kept continually burning. As soon as all the water in a pot has evaporated it is cleared and refilled, the salt being thrown into a general heap and exposed to the sun on sloping boards so that the bittern may run off, which takes from two to four days.

Nga-pee.

The invariable condiment used by Burmans and Talaing is, as already stated, nga-pee or salted fish. It is of three kinds distinguished as nga-pee goung (or whole nga-pee); toung-tha nga-pee (or pounded nga-pee *i. e.*, fish paste) and tsien-tsa ('raw eaten', because it can be eaten uncooked) *vel* nga-pee-hgnyeng (Arakan), *vel* gwai (Tavoy and Mergui), known to Europeans as *balachong*, the name given to it in the Straits Settlements.

Nga-pee goung are eaten roasted, fried or in curries and it is a great object with the cook and with the manufacturer to keep the fish whole, but the kind of fish is unimportant except in the case of nga-tha-louk nga-pee goung, a kind made solely from the nga-tha-louk or hilsa (*clupea palasah*). The large fish are scaled by hand but the smaller ones by means of a bamboo with the end made into a kind of stiff brush and worked amongst a mass thrown together, almost alive, into a wooden mortar; all are cleaned and the head fins and tail of the large ones removed. They are then well rubbed with salt, carefully packed in bamboo baskets with weights on the top and put away for the night, the liquid draining away through the baskets. Next day they are carefully taken out, again rubbed with salt and spread out on a mat in the sun, and the day following are packed away with alternate layers of salt in jars and left in a cool place. Gradually the liquid rises to the top and evaporates leaving a layer of salt matter, and in about a month they are ready for sale. Sometimes the supernatant liquid gets full of maggots before completely drying up and when this is so it is taken off and more salt is added. The fish preferred are nga-koo (*Clarias magur*) and nga-kye (*Callichrous sp.*). That made at and near Bhoora-gyee in the An-gyee township of the Rangoon district is celebrated all over Burma for its excellence. In making nga-tha-louk nga-pee the fish are not scaled nor are the heads tails and fins removed but each fish having been cleaned is filled and rubbed with salt and put in the sun for a day. They are then packed away in a shed on a mat floor and a mat being placed over them weights are superimposed. In three days the fish are ready for sale. They are most carefully handled each

fish being handed out separately to the buyer who stores them in his boat and carries them off to retail.

Dhameng or toung-tha nga-pee is made only from small fish and shrimps which are spread out on mats in the sun, without any salt and uncleaned, for two days by which time they have commenced to turn putrid; they are then pounded in a wooden mortar with salt. The mass is heaped up in a shed and several hollow bamboos are run into it; through these the liquid called ngan-pya-re escapes and is collected in jars for sale. The nga-pee itself is dug out and shovelled into the wholesale purchaser's boat and is the offensive-smelling kind alluded to by most writers on Burma. The fish preferred are the siluroids because they are scale-less.

Tsien-tsa is made entirely from shrimps and principally at Mergui and Tavoy. The shrimps are of two kinds one red and one brown and the colour of the paste differs accordingly. The smaller kind are exposed to the sun immediately they are caught and when they are half dry salt is added and the whole is intimately mixed into a paste by hand three times a day for three days, being left in the sun in the intervals. It is then ready for use and is put in pots. The larger are exposed in the same way but are pounded with salt once a day for three days.

If the shrimps are not put out directly they are caught the nga-pee is called "rek-pyan" and if kept for a day before exposure "rek-oop". These are stronger in smell and in taste than tsien-tsa.

Another kind is made but only for export to Rangoon and Maulmain. Large shrimps are packed in a basket and subjected to pressure and next day are taken out and spread in the sun; the following day they are pounded with salt and repacked and pressed. This is called "kek nga-pee".

Pots of various kinds are made in several parts of the province: salt-boiling pots in almost every district in which salt is extracted; small water chatties in Shwegyeng, Rangoon, near Maulmain and elsewhere, large water pots, commonly known as Pegu jars, at Twan-te and in other places; Bassein, however, is the place at which the most ornamental pottery work is carried on. Everywhere the general system of working is the same. The kilns are of masonry and vary in size; an ordinary one is about twenty feet long by twelve broad and ten feet high in the centre; the roof has much the appearance of a large unkeeled boat turned upside down. For the salt-boiling pots, which are of great thickness, the earth is usually mixed with fine sand—sea sand is the best—in the proportion of two to one; for ordinary pots rather less sand is added. In all cases the pots are turned

Pottery.

and fashioned by hand. Glaze is given by a mixture of galena and rice-water. Large numbers are cracked and broken in the burning. The Bassein pottery is more ornamental; flower-pots ornamented with applied tracery, if it may be so called, much as a sugar-covered cake is ornamented with patterns in lines of coloured sugar, and with flowers; and elaborate flower-pot stands with figures of flowers and men in almost every possible and impossible position.

Lacquered-ware

Drinking-cups and boxes for carrying the necessary ingredients for betel-chewing are made of lacquered-ware and are manufactured principally in Upper Burma, but they are also made to some extent in the Prome district. A box of the required size and shape is prepared of exceedingly fine bamboo wicker-work; the finer this is the more valuable is the box. On this is evenly applied a coat of dark pure vegetable oil, known as thit-tsee and obtained from the *Melanorrhœa usitatissima*, which is allowed to dry thoroughly. When it is dry a paste composed of pure sawdust, thit-tsee and rice-water is thickly and evenly laid on and when this is dry the box is fastened to a rude lathe and carefully smoothed with a piece of silicious bamboo, which is used instead of sand-paper. The next coat consists of a paste of finely-powdered bone-ashes and thit-tsee which is allowed to dry and is smoothed in the same way and the grounding is now complete. In colouring the boxes three colours only are used but of different shades. For *yellow*, yellow orpiment is carefully pounded and washed several times, being allowed to dry between each washing, until a pure and impalpable powder remains, reduced three parts in bulk from the raw powder; with this is intimately mixed a small portion of a kind of tragacanth and the whole dried in the sun. This is worked up with a vegetable oil called shan-tsee to the proper consistency and a little thit-tsee is added but not enough to injure the colour. For *green* finely-ground indigo is added to the orpiment in a sufficient proportion to give the required shade and the rest of the process is the same. *Red* is prepared from finely-ground vermillion mixed with a little thit-tsee and worked up with shan-tsee. A coat of the colour and shade intended for the foundation is thickly and evenly applied and when it is thoroughly dry the pattern which is to appear in the next shade or colour is engraved with a style and the colouring matter applied all over the box. When it is dry the box is placed on the lathe and the second colour removed by means of a bit of silicious bamboo so that it remains only in the lines of the engraved pattern. A similar process is followed for the different colours till the design is complete. Lastly one or two coats of a varnish of eight parts thit-tsee (wood oil) and one part shan-tsee are applied.

Gilt-boxes.

Another manufacture for which Prome is noted is that of the handsomely-gilt and varnished boxes in which the monks keep their books, &c. The box is made of teak and when finished it is covered with a mixture of wood-oil (thit-tsee) and sifted teak sawdust which is allowed to dry; the uneven parts are then smoothed down and the box is covered with a preparation of finely-sifted burnt rice-husk, wood-oil and rice-water. When this is dry it is rubbed down with a smooth stone and cocoanut-husk and water and is again rubbed with wood-oil. It is again fined down and put in the sun and when quite dry receives another coat of wood-oil and is put away in the shade; it is then washed, put out in the sun, coated with wood-oil and put away to dry. It is now ready to be ornamented. Sometimes this is done by sticking on small pieces of glass in different patterns intermixed with gilding but more generally by gilding only; the boxes with glass have a very tawdry appearance. Figures and flowers are drawn in wood-oil and a kind of gold-size and the box is then washed in the sun in boiled wood-oil and gently rubbed with cotton-wool after which gold-leaf is applied all over and gently washed with water when it comes away from all the unfigured parts. Some of these boxes are exceedingly handsome and in almost every case there is far more gilding than ground-work shewing.

Pa-ra-baik.

Writing-paper is now very generally used but it has not completely driven out the pa-ra-baik which is still employed in many places for memoranda and accounts, and as the writing can be rubbed out it will for many years to come remain in use as slates are in Europe. In some remote places mortgages, or rather memoranda of mortgages, accounts stated and other matters are still kept on pa-ra-baik and it not very unfrequently happens that such a document is produced in evidence and has to be rejected as not bearing the stamp required by law; its value, considering the facilities for changing the words or figures would, almost under any circumstances, be *nil*. It is made principally at Nwa-ma-ran, a village between Prome and Shwe-doung, and either of the bark of the Ma-hlaing tree (*Broussonettia papyrifera*) or of the inside of tender bamboos. In either case the substance is pounded into a pulp with water, and with half its weight of lime and with a sufficiency of water is boiled until nearly all the water has evaporated and the pulp will crumble between the finger and thumb. It is then again pounded, boiling water being added if necessary, and put into frames of the required size and put in the sun to dry. The edges are trimmed and both sides of what is now a sheet of grey, somewhat limp and very tough kind of card-board about one-sixteenth of an inch thick, are coated with a mixture

composed of finely-powdered charcoal boiled with rice-water or with glue made from hides: this is burnished with a smooth piece of bone and the pa-ra-baik is folded up much as a map often is. The pencils are sticks of steatite.

Mats.

Mats are made almost everywhere from fine strips of bamboo; those made from the silicious outside being more durable and more expensive. In many places fine mats are made from the bark of the *Theng* (*Maranta sp.*) a kind of rush, the price varying according to the size and workmanship. These are often in patterns, and sometimes the pattern is marked by strips dyed black by being soaked in fœtid mud. These however are not so durable as the plain white ones as the black strips are damaged by the dyeing process.

Brass-founders.

Brass-founders, who are not numerous, turn out excellent bells and gongs, besides dishes, bowls and numerous other utensils. The bells, which are placed on pagoda platforms, are of all sizes and very thick, with a ring at the top by which they are slung to a cross-bar supported on two uprights. There is no clapper and the bell is sounded by striking it on or near its lower rim with the end of a piece of wood or the butt end of a deer's antler. The gongs are triangular. In both silver is added in various proportions to regulate the tone. Images of Gaudama, some of vast size, are cast in brass, and pious persons give silver and gold to be added or even throw jewelry into the molten mass. A mould is made of clay and this is coated with wax, the wax varying in thickness according to the thickness desired for the walls of the image; over the wax is placed a thick coating of clay and chopped rice-straw with holes at intervals for pouring in the metal and with straws introduced as channels for the escape of air. The metal is poured in from small crucibles, and at first in the lowest row of holes then in the next and so on so that the image is built up. When it is cool the outer casing is taken off, the flaws and holes filled up, and the whole polished so as to hide any defects in the workmanship. Large bells are cast in much the same way.

Iron-work.

Iron-smiths ply their trade generally all over the province, and their principal occupation is in making swords, spear-heads and knives. Dha-ma are the ordinary "dha", or "dhao" as they are called in Bengal, and are used as choppers. They weigh from about one to about four pounds and vary from two and a half to five inches in breadth and all have broad backs. Dha-shay are generally about a pound and three quarters in weight, a foot and a half long and three inches or little a less in breadth with a rounded point and with a narrower back and a

longer handle than the dha-ma; dha-lway or swords are lighter, longer and narrower and end in a flattish concave circle; the dha-myoung, or daggers, vary in size and weight, are pointed and have a straight, short handle: the three last usually have a scabbard formed of two flat pieces of wood slightly hollowed and bound together with pieces of fine cane or with silver bands. Besides these are made numerous other knives, for tari-drawers, to be used as sickles for cutting grass in the fields before the ground is ploughed up and for various other purposes.

Silver-smiths.

The gold and silver-smiths, of whom there were 2,851 in 1872, are chiefly employed in making bowls and ornaments such as rings, ear-plugs, chains and necklaces of different patterns. The bowls and cups are first made plain and then filled with lac and covered with tracery and figures in repoussé work of noticeable originality and boldness in design. The rings are usually plain and set with one or more precious stones principally rubies, spinels, diamonds and sapphires. The ear-plugs are of gold with or without precious stones and consist of hollow tubes closed at either end, about an inch or an inch and a half long, three quarters of an inch in diameter at the ends and half an inch in the centre. The chains are of simple patterns; but some of the necklaces are highly ornamental, especially the da-lee-zan which consists of rows of small birds or of roses or of similar figures joined together by chains forming a kind of ornamental net-work which hangs over the breast.

Wood-carvers.

The wood-carvers have their time fully employed in making decorations for monasteries and the roofs of other religious buildings which, except in the case of a very poor "benefactor," are all more or less ornamented and some highly so. The work is bold but coarse. The best is now done at Henzada.

All the work of handicraftsmen is coarse and wants finish and neatness.

Steam-mills.

Steam-mills for husking rice and owned by European, Chinese or Indian firms have been built and are at work in Akyab (6), Bassein (5), Rangoon (17) and Maulmain (6). The whole process is carried on by machinery. Many of the mills owned by Europeans are as fine as any that can be found in Europe: several are capable of turning out 800 tons of five-part cargo rice in twenty-four hours. They are built of brick and contain the best and most modern machinery: the engines are of the newest type; some are compound and can be worked up to from 400 to 500 indicated horse power. A very large proportion of the grain husked is converted into what is called "5-parts cargo rice"

that is rice in every five grains of which one is unhusked, but as a rule of late years the proportion has been altered to nearly five grains husked to one unhusked.

During the past few years a large trade has sprung up in white rice. The Straits and Madras coast ports are regular buyers of a medium quality, while table rice equal in quality to that turned out of mills in Europe is in increasing demand for South American ports, for Egypt and for Italy. Year by year millers, more especially in Rangoon and Maulmain, are adding white rice machinery to their existing mills, and several mills have been erected almost entirely for making this description and rice flour.

The quantities of grain prepared and exported during the seasons of 1877 and 1878 were, in tons:—

	1877.	1878.
Rangoon	394,229	490,256
Moulmein	49,479	51,270
Bassein	97,548	130,673
Akyab	106,052	111,127
	647,308	783,326

Steam saw-mills, of which there were 22 in 1877-78, are principally at Maulmain the best timber coming from the Shan forests, but there are some at Rangoon and one at Tavoy.

A manufactory for the preparation from petroleum of refined burning oil and for the manufacture of candles has been started at Rangoon and is in successful operation.

Two endeavours have been made to start a steam sugar-mill, one at Amherst and one at Martaban, but both failed.

Agriculture. The crops cultivated during each of the last ten years have been, in acres:—

Year.	Rice.	Oil-seeds.	Sugar-cane.	Cotton.	Indigo.	Tobacco.	Fruit trees.	All others.	Total.
1868-69 ...	1,667,202	5,523	3,602	4,562	133	10,004	50,249	156,322	1,897,657
1869-70 ...	1,712,030	10,239	3,521	6,596	147	10,318	61,656	159,605	1,964,112
1870-71 ...	1,733,815	20,944	3,586	7,099	104	11,536	71,973	1,890,348	1,962,321
1871-72 ..	1,836,021	25,502	3,179	14,120	412	12,866	27,397	207,960	2,127,457
1872-73 ...	1,893,199	17,136	3,466	13,122	231	13,949	68,408	161,275	2,170,789
1873-74 ...	2,061,568	16,372	3,287	12,195	295	16,452	62,365	237,583	2,410,117
1874-75 ...	2,301,573	12,064	4,596	14,333	191	11,253	85,264	250,076	2,679,350
1875-76 ...	2,379,001	13,260	4,331	9,779	89	14,234	96,475	239,185	2,756,354
1876-77 ...	2,438,939	12,044	4,271	8,229	196	18,207	87,611	222,426	2,791,023
1877-78 ..	2,511,756	14,473	4,140	9,245	662	16,737	177,671*	52,942	2,823,803

* The difference between 1876-77 and 1877-78 is due to a difference in the method of classification.

Rice.

By far the most fertile land is found in the delta of the Irrawaddy and it is here that the largest amount of rice and that of the best quality is grown. There are five methods of raising a crop practised in different parts of the country.

1st. On the ordinary swamp land in low-lying plains where the rain-fall is sufficient.

2nd. On level land from which the rain water runs off too quickly and irrigation has to be resorted to.

3rd. On land near the river bank which is submerged and cannot be planted till after the highest rise.

4th. In hill clearings.

5th. A hot-weather crop obtained by irrigation either by means of dams or by water-wheels.

For the first three ploughing commences about June, that is as soon as the annual rains have softened the soil and rendered possible the use of the primitive plough which is in truth little else than a harrow with long teeth. The ploughman stands on the bar and the harrow is dragged about the water-sodden field till a smooth surface of mud has been obtained. In the meanwhile nurseries have been prepared on somewhat higher spots and the seed sown in them broadcast. By about July or August the fields of the first two classes and the plants in the nursery are ready and the young plants are dibbled in, two together at intervals. This portion of the agricultural labours is generally undertaken by the women and children, neighbours often aiding each other. In the case of the riparian lands the plants cannot be put out till about September; the harvest begins in November and is over by January. The crop is cut with a sickle and collected at the threshing floor in some places in carts in others on sledges. This is simply a portion of the field where the soil has been made flat and hard and a stake driven is to the ground in the middle. The sheaves are taken from the stack and arranged in two circular lines round the stake, one on the other with the ears pointing in one row inwards and in the other outwards, and cattle are driven round and round treading out the grain. It is then sifted, in some parts of the country by a hand winnowing machine (fans fastened to a spindle being made to revolve and blowing away the light grain and straw as the rice in the husk, poured in at the top, passes down between the revolving fans and a bell-shaped mouth at the end of the machine) but usually the method is more primitive; a tall tripod is raised and a platform put up between the legs at five feet or so from the ground, over this and reaching down to the ground is a mat which serves as a kind of shoot to guide the grain

in its descent; hanging from the top of the tripod is a flat basket, a man stands on the platform and receiving from one below the baskets of unwinnowed rice he fills the hanging basket and upsets it; the good grain falls on to the mat and thence on to the ground in an accumulating heap and the light grain and chaff are blown away by the wind.

The hot-weather crop is planted in January, February and March and is reaped about three months afterwards. The water necessary is usually obtained by throwing a dam across a stream but at Meng-doon in the Thayet district, and nowhere else, a self-acting water-wheel is used which is thus described by Colonel Horace A. Browne. "It is simply a large paddle-wheel, construct-"ed altogether, with the exception of the shaft, of bamboos. The "shaft is made of some hard wood. The floats are pieces of coarse "bamboo mat-work. Between each pair of floats are two bamboo "buckets sloping outward at an angle of 45° from the centre of the "periphery of the wheel. The frame-work on which the wheel rests "consists, generally, of about eight moderate-sized jungle-wood posts, "four of which are planted close to the water's edge and the other "four parallel to them further out in the stream. The shaft of the "wheel rests on a cross-piece between the four posts, two on each side, "which are lowest down the stream. The wheel is placed so that the "floats are just under the surface of the water. The current causes "the wheel to rotate. The mouths of the buckets are pointed down "stream; they have a slanting upward direction as they emerge "from the stream, so that they retain the greater part of the water "with which they have been filled when below the surface, until the "rotation of the wheel brings them to the top when they discharge "their contents into troughs above the edge of the river bank.

"The banks of the Ma-htoon, where a view can be obtain-"ed at once of several of these spider-like machines in cease-"less motion, their shafts humming loudly, and the waters "splashing and sparkling all over them, form a singularly interest-"ing spectacle."*

The toung-ya or hill-gardens are by no means peculiar to this country. They are known in Mysore, in the Central Provinces, where according to Captain Lewin they are called "dhai-ya", and in Assam where they are called "jhoom" and this system of cultivation is probably common everywhere in India amongst hill-tribes; it is the only one which they can follow but it is most wasteful and is the worry of the lives of our forest officers who never seem to lose an opportunity of inveighing against it. Having selected a site on the

* Statistical and Historical account of the Thayet district. By Colonel H. A. Browne. Rangoon: 1874, p. 83.

side of a hill, and the more thickly covered with bamboos and forest the better, the cultivator and his family set to work in April and fell everything. After two months drying the fallen trees and dried brushwood are set on fire and burn for several days and some of the larger logs even for weeks, the ashes fertilizing the soil. An ingenious method of lightening labour is sometimes adopted. The cutting commences from the bottom and the lower trees are only slightly cut on the upper side, as the woodmen ascend the hill they cut deeper and deeper and at last cut the trees completely through. Thus cut they fall on those below them and by their weight knock them down and the felling thus continues to the bottom. It is only in suitable localities that this system can be adopted.

Immediately after the first fall of rain the surface is slightly broken up with a kind of hoe and the ashes mixed with it, and the seed, usually rice and cotton or sessamum and cotton, is sown broadcast, and from this time onwards the principal labour is in keeping down the weeds. The rice (which is not of the same kind as any of that grown in the plains) and sessamum are reaped in September or October, and the cotton bolls are picked in December —April. After this the hill-clearing is abandoned.

Where this system prevails the land is never measured but the revenue is assessed on the families working. The area therefore is not included in the table on page 423. The number of these hill-clearings in 1868-69 was 51,352 and in 1877-78 77,797.

Sessamum.

Sessamum, the cultivation of which has nearly trebled in ten years, is grown largely wherever the toung-ya or hill-clearing system is carried on, as on the flanks of the Roma and amongst the mountains east of the Tsit-toung, and on sandbanks submerged during the rains. In some places it is grown on the lower ground where the area under each crop is measured and especially in Thayet, Henzada and Sandoway. It is sown in hill-clearings at the commencement of the rains and reaped in September and October. When cultivated in the plains it is sown in September or October and reaped in December—January. The oil is expressed during the hot season by a simple process in which a gigantic pestle is worked round and round in a wooden mortar by a bullock. The small end of a large log is buried some eight feet in the ground leaving the large end, from two to three feet in diameter, four feet above the ground, this is hollowed out to a depth of two feet and in the mortar thus made the rounded heavy end of a pestle six feet long is inserted. To the upper end of this pestle a cross-bar is fixed and this is worked round and round by the bullock travelling round in a circle with the mortar as the centre. The seeds are sifted and cleaned

and put out in the sun for a day or two to dry and are then, when partly bruised, thrown in and kept wet with hot water and crushed by the revolving pestle. In some cases the oil runs off by a hole in the side of the mortar, and in some cases it is extracted by the exceedingly primitive method of dipping cloths into the mass and when saturated ringing them out.

Sugar-cane.

The cultivation of sugar-cane has not much increased on the whole and in Kyouk-hpyoo, formerly its great stronghold, it has fallen off and to a greater extent than it has risen in the neighbouring district of Sandoway. In Prome it has fallen in ten years from 1,099 acres to 93, and in Henzada it has ceased altogether. On the other hand in Amherst and in Shwegyeng it has largely increased. In these two districts it is planted chiefly on the banks of the Bhee-leng which annually overflows its banks and when the waters fall they leave a rich alluvial deposit especially favourable to its growth. At the season a brisk trade is carried on in the cane and in sugar on the banks of this river, the traders from Tha-htoon being the principal purchasers. The juice is expressed in a mill somewhat resembling that used for sesamum and is boiled down and poured out on to mats to harden.

Cotton.

Cotton is grown principally in hill-gardens and in Thayet. In former years the Thayet produce was carried up-country and exported to Yunan but the out-break of the Panthay rebellion checked if it did not altogether stop trade by this route and the price of rice in the husk rose so rapidly and has continued so high and the importation of cotton goods and of twist has been so large that there was little or no demand for the home-grown article and the cultivation of rice has become far more profitable. For many years persevering efforts have been made to introduce foreign cotton especially Egyptian, Upland, Brazilian and Carolina, which would give a longer staple but these have been unsuccessful not only for the reasons given above, of which undoubtedly the greater returns from rice together with the large areas of rice land available on the easy terms on which land is granted are the most important, but also because the native plant is hardier and requires little care. The cotton grown in Upper Burma is still shorter-stapled than that grown here and much of that imported uncleaned is taken to Prome, Allan-myo and Rwa-toung, where are the principal cotton ginning mills, cleaned and mixed with Thayet and Prome cotton for export. The plants in British Burma are of two kinds known to Burmans as the "large" and the "early" respectively. "The early kind is a plant which does not grow more than "three or four feet high and its bolls are ripe in December and "January. The large kind reaches a height of from six to ten

"feet and its seed does not ripen till a month or two later. The "produce of the two kinds is hardly distinguishable."

Indigo.

Indigo is not much grown and chiefly in Kyouk-hpyoo and Henzada. During the dry season the leaves and tender twigs are placed in some large vessel which is filled with water and are allowed to soak for twenty-four hours or so when slaked lime is added and the whole is stirred by a wooden pole worked by hand. When the mass has been well stirred the leaves and twigs are taken out and thrown away and the liquid left for three or four days to settle; when the sediment has fallen to the bottom the water is drained off and the blue liquid deposit is placed in pots to solidify. The home-grown produce is not sufficient and annual importations take place from the Straits Settlements. The value of the imports in 1877-78 was Rs. 24,697.

Tobacco.

Tobacco is grown almost all over the province but especially in Thayet, Prome, Henzada, Tharrawaddy, Sandoway, Ramree and the Arakan Hill Tracts, and mainly on sandbanks and in the dry beds of streams which are flooded during the rains and where the soil is unimpregnated with salt. It is essentially a dry weather-crop, sowing commencing in September and lasting till the end of October or thereabouts, the highest spots being selected for nurseries; here the soil is very carefully pulverized and the seed sown broadcast. The fields, if they may be so called, are ploughed and harrowed and in January the seedlings when from two to six inches high are planted out in rows and except a slight watering for the first day or two, and in some places, *e. g.*, Sandoway, being sheltered from the sun by a piece of plantain bark or a large leaf, receive little attention. Few weeds spring up and weeding is unnecessary. When the plants are about eighteen inches high the tops are nipped off, as are some of the top leaves and all freshly appearing young shoots. The lowest leaves are left to shade the roots and keep the soil over them moist during the hot weather. The plants kept for seed are not touched. During February and March the leaves are plucked and are spread out to dry either on the ground or on a raised trellis-work platform made of bamboos, or in open sheds (Arakan). When dry the leaves are strung together on a bamboo slip and are ready for sale.

The tobacco of this province is said to be superior to the ordinary Indian tobaccos, yet the quantity imported is large, but the export is still larger. Burma cheroots have obtained a name in the Indian market but the larger number sold in India are made from Madras tobacco imported in the leaf and re-exported when rolled into cigars. Yet the manufacture is carelessly conducted and

Burma cigars are, as regards quality and manufacture, undoubtedly inferior to Dindiguls.

In the Arakan Hill Tracts the seed is sown broadcast and the plants are not transplanted but are weeded and thinned out.

In June 1877 the Government started an experimental tobacco farm at Myouk-toung in the Arakan Hill Tracts, but the result has not, owing to the want of labour and good supervision, been satisfactory.

Tea and coffee.

In the Akyab district only are tea and coffee grown and the area cultivated shews no tendency to increase. For several years past 150 acres were planted with the former and thirty with the latter. Tea planting was commenced in 1862 and some specimens sent to the Calcutta Agricultural Exhibition in 1863-64 gained a prize. The out-turn in 1876-77 was 25,374lbs. Coffee was first grown in 1876-77, at least that is the first year in which it appears in the returns.

Fruit.

In fruits and fruit trees the country is rich, producing ma-ran (*Bouea oppositifolia*), carambola (introduced from the Moluccas) oranges, limes, doorians, mangoes, mangosteen, jack, papaya, cocoanuts, guavas, cashew nuts, pine-apples, melons, plantains, custard-apples, kana-tso or Rangoon grapes (*Pierardia sapota*), sweet-limes, citron, pomegranates, tamarind, jujube, shaddocks, lee-chee, a comparatively late importation, and sapodilla plums, besides many others. The doorian and mangosteen are not found north of Bhee-loo-gywon nor the lee-chee north of Tavoy. The first produces a fruit of which Burmans of all ranks are exceedingly fond and large numbers are exported annually to Upper Burma for the royal family. It is about the size of a shaddock and the outside is covered with sharp points, inside are several seeds, one or two in each of the compartments into which it is longitudinally divided, surrounded by a soft almost creamy yellowish-white pulp covered by a thin pellicle. The flavour is that of a mixture of rotten onions, cream and sugar with a soupçon of garlic and the smell horribly fœtid. Europeans rarely overcome the dislike to the smell—which is principally from the inner part of the rind—but many become very fond of the fruit. It is believed to be heating and old residents recommend that doorian should be followed by one or two mangosteen, a most delicious fruit about the size of an orange with a hardish dusk-red skin containing from five to seven seeds cased in pure snowy-white pulp very luscious and with a faint sub-acid flavour. The best oranges are grown in Mergui, Tavoy, Bhee-loo-gywon, Shwe-gyeng and Rangoon. The sapodilla is found only near Shwe-gyeng and at Twan-te a few miles west of Rangoon. It was the royal fruit of the Talaing and at one time

reserved for the Peguan royal family. Custard-apples are found in many places but principally at Prome where the neighbouring hills are covered with orchards of this fruit. The Rangoon grape is found in perfection in Tenasserim. The tree is a large one and the fruit hangs in bunches like large yellow grapes; the flavour is not unpleasantly sub-acid.

Vegetables.

Of vegetables there is a great variety; amongst others, Kareng potatoes, sweet potatoes, yams, beans of several kinds, horse-radish tree of which the pods are eaten, wild asparagus, various species of gourds, two or three kinds of momordica, resembling a cucumber covered with tubercles, cucumber, brinjal, tomatoes, okra, leeks, onions, chillies and Chinese radishes. Chillies are grown more largely in Thayet and in Akyab than elsewhere but the great vegetable-producing district is Henzada. The chillies are sometimes planted on the sides of hills but more generally on alluvial flats in the bed of a stream which are more or less under water during the rains and the ground is very carefully prepared; indeed in the cultivation of most vegetables great pains are taken. The seedlings are put out after the rains and the crop is gathered in March and April.

European vegetables are cultivated near towns but principally for the use of Europeans. Several attempts have been made to grow potatoes and one made on the hills beyond Toung-ngoo has been highly successful.

Embankments.

In former years the whole delta of the Irrawaddy and the Shwegyeng and Amherst districts were much damaged by floods and as early as 1862 steps were taken to remedy this in so far as the valley of the Irrawaddy was concerned. In that year an embankment was constructed on the right bank in Henzada and about fifteen thousand acres of cultivation thus protected. During the same year the whole question was taken up on a large scale and an officer was specially deputed from Bengal who prepared a series of embankment projects for the reclamation of land on the west bank of the Irrawaddy. The work was at once put in hand and has been pushed forward ever since, new projects being gradually entered upon. These embankments now extend with intervals along the Irrawaddy from Akouk-toung to Donabyoo and from the northern mouth of the Nga-won or Bassein river along its left bank to below Nga-thaing-khyoung. But in very high rises the country still suffers and much of the water which formerly flowed over the right bank of the Irrawaddy has now to escape over the left bank and floods much of the country between the Irrawaddy and the Hlaing down to Rangoon. The year 1877 was a most disastrous one; the floods

were heavy everywhere, except in Arakan where the rivers are short, and the Nga-thaing-khyoung embankments gave way. These floods occurred after the crops had been planted out and the loss was enormous. Embankments have also been made in Ramree and one in Amherst to protect the Tha-htoon plain, and another in Rangoon to protect the Pegu plain.*

Stock.

The agricultural stock during each of the last ten years has been, according to the published returns :—

	1868-69.	1869-70.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.
Buffaloes ...	401,234	439,928	469,689†	551,566	569,610	590,009	630,708	643,664	636,541	6[illegible]4,542
Cows, bulls and bullocks	419,887	475,391	561,424†	529,654	546,804	565,980	618,401	664,480	688,517	713,715
Sheep and goats ...	15,568	14,699	14,819	15,081	18,594	16,508	18,400	18,741	19,151	19,690
Elephants...	851	1,031	1,098	1,049	1,015	1,004	1,119	1,235	1,261	1,324
Ponies ...	6,796	5,669	6,795	6,524	6,326	6,035	6,275	6,915	6,191	5,758
Pigs	128,579	81,701	89,017	85,458	94,817	90,368	95,371	99,700	101,181	102,458
Carts ...	66,456	134,891	140,368	144,036	165,539	170,695	200,758	180,964	180,016	193,823
Poughs ...	258,729	254,760	235,207	241,264	252,712	253,472	383,976	280,136	255,260	292,593
Boats ...	56,800	56,947	60,326	60,421	61,662	63,673	50,189	66,340	66,331	65,015

It can hardly be but that the extraordinary variations are to some extent, but not entirely, due to different systems of classification. In 1869-70 the returns for Rangoon shew 1,368 horses and not a single pony: outside the town there could not have been more than a dozen horses and within the town limits there must have been numerous gharry ponies. The number of pigs in 1868-69 is larger by far than in any year since, though no special mortality is announced, nor could any other four-footed animals have been classed with pigs. The sudden increase in carts in 1869-70 would lead to the opinion that sledges were included in the returns for the latter year, the more especially as there is a falling-off in the number of ploughs.

The buffaloes are fine large animals, of an exceedingly suspicious disposition, gentle and obedient to those whom they know but violent and dangerous to strangers. Europeans seem to be their pet aversion and it is curious to see, as one sometimes does, a stalwart Englishman protected from a buffalo by a little Burman lad of ten or twelve, who quietly leads away the startled animal which, but for his appearance on the scene, would have charged and possibly killed the unoffending but abominable white man. Their innate savageness is shewn in those trained to fight as at Mergui, Tavoy and Amherst which sometimes turn upon and

* See Chapter XV.

† The returns for Sandoway include the buffaloes amongst cows, bulls and bullocks.

fatally gore their attendant, especially if he interferes to prevent a fight on the grazing-ground. They are delicate and as a rule are not well cared for, and it is hardly an exaggeration to say that a plough buffalo is good for from three to four years only. There are more found in Akyab than in any other district of the province. The cows, bulls and bullocks are hardier but are small. Continual endeavours have been made to improve the breed but all have been unsuccessful: as early as 1832 Captain White, then in charge of Sandoway, pathetically complained that having imported two fine bulls he shortly afterwards found them as bullocks drawing a cart. The stock is largely recruited by imports from Siam brought into the Amherst district and thence gradually distributed over the country and by animals brought down from Upper Burma.

The little care shewn by Burmans and Talaing adds to the deaths caused by periodical outbreaks of murrain, and the number of both buffaloes and cows, bulls and bullocks that die is enormous. In 1836 there was an epidemic in Tenasserim and not less than 12,000 head of buffaloes were swept off; in 1862 Arakan lost vast numbers, and "within the eighteen months ending with the "30th April 1866 it is estimated that not less than one hundred "thousand head of cattle, buffaloes and bullocks, have died from "disease."* In 1867 the disease appeared again and the cultivators of the Akyab district alone lost no less than 53,441 head, and the rest of the province by no means escaped. In 1872 and again in 1874 it prevailed to a considerable extent in the delta of the Irrawaddy and Rangoon alone lost 11,661 head. In 1875 it "interfered "seriously with cultivation in the Thoon-khwa, Bassein and "Amherst districts, 14,120 head having died in the last-named "locality alone."† In 1876-77 "the Arakan and Tenasserim "divisions were visited during the earlier part of the year by a "most serious outbreak of cattle-disease. In Arakan it is stated "that as many as 50,000 buffaloes and 10,000 head of other cattle "were swept away by it; whilst great numbers also died from its "effects in the Amherst district of Tenasserim."‡

Mr. Frost of the Royal Artillery, who in November 1876 was appointed veterinary instructor,§ visited Amherst and after reporting that the disease was not an infectious one and not true rinderpest but foot and mouth disease continued: "If the people

* Administration Report for 1865-66.
† Administration Report 1875-76, para. 146.
‡ Administration Report 1876-77, para. 144.
§ In order, as far as possible, to mitigate the results of these outbreaks the Government has established a Veterinary Class of twenty Burmans, Talaing and Kareng, who receive Rs. 10 a month each and are now undergoing a three years' course of instruction.

" can be induced to take more care of their stock and to adopt " measures to protect their beasts from the vicissitudes of the seasons " doubtless the mortality will become much less, but so long as " buffaloes are allowed to starve during the months of February, " March and April of each year and are then worked almost to death " at the time of cultivating the paddy (*rice*), so long will they con- " tinue to die. When the rains set in fresh grass springs up very " quickly; this grass contains very little nourishment, the animals " devour large quantities of it in order to satisfy the cravings of " hunger and on such food the poor beasts are worked from morn- " ing till night and when night comes on they are turned out in " the rain with not a dry spot to lie upon." Mr. Frost's predecessor had already sent in a report containing very similar views: writing of the delta of the Irrawaddy he said—" mortality amongst cattle " will always be great in this province so long as the conditions " under which they labour remain unchanged. First it must be " remembered that all buffaloes used in the district are purchased " from dealers who bring them great distances from other States " into a country deficient in two great necessaries to animal life, " *viz.*, shade and water, and this can only be effected in the dry " season. The buffaloes before they reach their destination are " generally in an exhausted condition, inviting disease in various " forms, and I have heard of two or three hundred buffaloes " dying out of a drove in a few days.

" The main supply of water is obtained from tanks. As the " dry weather advances this generally diminishes and cattle are " driven to drink water from tidal creeks, which is brackish and " contains large quantities of earthy matter, salt and other impu- " rities. It is hardly possible to obtain fresh water from wells " owing to the amount of salt in the soil.* Every well that is sunk " in the rains will turn brackish in the dry weather. It is from " this scarcity of water that dysentery is so prevalent and fatal at " the end of the dry season.

" Tracts of land where buffaloes generally graze fall under " the full influence of the scorching heat of the dry season; no " umbrageous trees shield the poor, panting animals; seldom " will the owners erect shade for them: wedded to the custom " of their forefathers, they point to mortality as arising from " other causes, forgetting that in former times so much land " was not under cultivation and the virgin forests were then " cattle grazing-grounds; in fact they will not live with the " times. * * *

* This does not apply to the whole province but to the lower portion of the delta of the Irrawaddy and to the coast tracts.

"During the hot season animals find food dry and scanty and "have to travel great distances for it. At the beginning of the "rains they suddenly change to young succulent grass and thou-"sands die annually from *hoven*; this is due to the carelessness "and improvidence of cattle owners. It is the custom after the "grain has been trodden out of the ear to burn nearly all the straw; "if this was stacked and given to the cattle in pens several hours a "day instead of allowing them to graze at large it would gradually "accustom the animals to the change of food, and thereby save "numbers from death and their owners from heavy losses. * * *

"The season for ploughing and preparing the land for crops "is also attended with heavy losses in cattle; animals are generally "fat and out of work for some time past, enjoying the abundance "of forage and spending most of their time in the water. They "are taken into the fields and worked several hours a day and then "left to do for themselves. Old animals are the first to succumb,— "an attack of fever sets in, the animal refuses food, dysentery too "rapidly follows and the animal is often dead before the owner "knows that anything is amiss. This again is due to careless-"ness on the owner's part: it is unreasonable to expect any animal "to undergo severe physical exertion for several hours a day on "such food as can be picked up near a rice-field. A more gener-"ous diet is required; paddy (*unhusked rice*) is cheap and abundant "and should be given with straw when heavy labour is to be per-"formed. In addition animals are left at night exposed to wind "and rain, immersed in water, and it is no longer a matter of "surprise that so many die at this season.

"At the close of the rains when the ground is saturated with "moisture and covered with heavy dews, foot and mouth disease "is very troublesome to oxen. It always assumes an epizootic "form and extends over whole districts. A great deal depends "upon the season; if the rains cease soon after it makes its appear-"ance the outbreak will not be severe, as it does not prove fatal in "dry weather with ordinary care. Should the wet season be a "protracted one then the mortality is great owing to the villagers "having no dry place for their cattle. Burmans do not fear this "disease and therefore do not segregate affected animals. It is "worthy of notice that buffaloes are not so subject to this disease "as oxen. An instance came under my observation where a herd "of over 800 oxen sick with foot and mouth disease lost many "animals from want of proper accommodation, &c.; within twenty "yards was penned at night a herd of 150 buffaloes that traversed "the same ground daily yet only six contracted the disease and "these in a very mild form.

"Laying aside the consideration of any outbreak of murrain "that may occur we find that this province annually losesthousands "of animals from preventable causes, *viz.* :—

"(1) buffaloes from dysentery owing to deficiency of shade and good water;

"(2) oxen from foot and mouth disease, owing to deficiency of dry sheds;

"(3) and (4) oxen and buffaloes from *hoven*, fever and dysentery, owing to bad management and want of proper accommodation."*

Further north the animals are better looked after and the climate is drier, too dry indeed for buffaloes which there are only found along the banks of the main rivers and their larger affluents, and disease is rarer.

Notwithstanding these enormous losses the number of buffaloes has in ten years increased by more than forty-four per cent. and the number of cows, bulls and bullocks by almost seventy per cent.

Of sheep there are very few except at Prome, where there is a Government farm, and at the military stations and almost all the 19,690 shewn are goats. They are rarely met with away from towns and are not indigenous but have been imported from India. Sheep-farming was attempted by the Government but it failed. As the only advantage in breeding them is to turn them into mutton it is most improbable that Booddhists would ever take to it.

The ponies are importations from the Shan States, whence numbers come down every year in January; they and their descendants are usually known as Pegu ponies as they were exported to India from Pegu, much as the large jars manufactured at Twan-te are called Pegu jars. They are small but very hardy and exceedingly tractable. The Burmese are not a riding race and the ponies are generally used for no other purpose than to draw carriages which are used only in towns where there are roads; indeed they have only just been introduced into Prome. The officials and richer amongst them however do ride and the whole people is fond of pony-races, but chiefly on account of the betting for they are all, men and women, inveterate gamblers. About a hundred are exported to India and the Straits every year.

The pigs are kept chiefly by the Chinese, Kareng and Khyeng.

Fowls are everywhere abundant, but they are not of a good breed. Ducks are less common.

* Administration Report for 1874-75,—para. 177.

The carts have increased by two hundred per cent. but the ploughs and boats but slightly in comparison.

Carts.

The carts are of two kinds, one drawn by bullocks and the other by buffaloes. Both are built on somewhat the same lines, but the latter are larger. They consist of two poles united at one end where the yoke is fastened and the other ends resting on a strong bar lying over the axle; on this is placed the body. In some parts of the country the floor of the body curves upwards towards the back so that a line drawn from the back to the front would form an angle with the plane of the horizon of about 35°, and especially is this so in carts for buffaloes, which are altogether larger and heavier. The wheels formerly consisted of one untired solid rounded slab or far more often of two semi-circular slabs joined together and these are still found in many places though wheels constructed on the European model are coming into very general use. The wood preferred for wheels was Padouk (*Pterocarpus indicus*), but except in Tenasserim it is comparatively too uncommon a tree to have been much used; Theng-gan (*Hopea odorata*), Bhoom-mai-za (*Albizzia stipulata*), Than-that (*A. lucida*), Kook-ko (*A. lebbek*), Lay-za (*Lagerstrœmia tomentosa*), Htouk-sha (*Vitex leucoxylon*) are amongst the woods most usually employed in different parts of the country and, comparatively speaking rarely, Anan-bho (*Crypteronia paniculata*). The trees generally preferred for the axles are Gyo (*Schleichera trijuga*) and Hpek-won (*Berrya mollis*), and for the poles Hpek-won, Tha-bwot-gyee (*Miliusa velutina*), Reng-daik (*Dalbergia cultrata*), &c., whilst almost any durable wood is used for the body, but Pyeng-ga-do (*Xylia dolabriformis*) and Bhan-bhwai (*Careya arborea*) are most esteemed. In some places sledges are used for removing produce; they resemble small carts without wheels.

Of boats there are numerous kinds, from the small canoe to the large earth-oil or rice-boat; but all have a dug-out for the foundation whilst those in use on

Boats.

the Irrawaddy differ considerably from those found elsewhere. The Irrawaddy boats again are of two kinds. In one "the "keel-piece is a single tree hollowed out and stretched by the aid "of fire when green, a complete canoe in fact. From this ribs "and planking are carried up. The bow is low with beautiful "hollow lines * * * *. The stern rises high above the water and "below the run is drawn out fine to an edge. A high bench or "platform for the steersman, elaborately carved, is an indis-"pensable appendage. The rudder is a large paddle lashed to "the larboard quarter, and having a short tiller passing athwart "the steersman's bench * * * *. The mast consists of two spars,

"it is in fact a pair of shears bolted and lashed to two posts rising "out of the keel-piece * * *. Above the main yard the two pieces "run into one forming the top-mast. Wooden rounds run as "ratlines from one spar of the mast to the other, forming a "ladder for going aloft. The yard is a bamboo or line of spliced "bamboos of enormous length and is suspended from the mast-"head by numerous guys or halyards, so as to curve upwards in "an inverted bow. A rope runs along this from which the huge "mainsail is suspended, running on rings, like a curtain, outwards "both ways from the mast. There is a small topsail of similar "arrangement: the sail-cloth used is the common light cotton "stuff for clothing."* On the stern-half of the boat is a house in which the boatmen live and the forepart, which contains the goods carried, is covered by one or more strongly-made bamboo mats, strengthened by bamboo frame-work, which do not rise above the gunwale and which serve as a deck. In the larger boats a gallery of large bamboos, firmly fastened together and extending along each side from stem to stern, stretches out for two feet and serves as a poling-place for the boatmen who, several on each side, plant their bamboo poles firmly in the bank and resting the upper end in the hollow just above the collar bone lean forward at an acute angle and run together from stem to stern. In the smaller boats the mast is single and is fastened to a post rising from the centre, when lowered falling on the roof of the house, and there is no outer gallery. In the larger boats the planks are held together by numerous metal ties and look as if sewn together.

The other kind are flat-bottomed and punt-like and are, "except the dug-out bottom, entirely composed of planks which "extend throughout the length of the vessel wide in the middle "and tapering from stem to stern like the staves of a cask." These invariably have the outer gallery alluded to above. They are used principally for carrying earth-oil in bulk.

The boats on the Tsit-toung, and elsewhere except on the Irrawaddy, are built somewhat in the same way, a single log forming the body, but the double mast is not used and the stern is not nearly so high. In all the cooking-place is much the same as that used on shore, a shallow box filled with earth or ashes or both.

Land tenure.

The traditional origin of landed tenure in Burma appears to be exactly the reverse of that in India. In the latter country the sovereign has always been considered the Lord paramount over, and the chief proprietor of, the soil. In Burma although the chief ruler is considered to be entitled to a share of the produce his title to it rests on a

* Yule's Mission to Ava, pp. 6, 7.

different foundation. He acquired such share only by the gift of the people who voluntarily surrendered to him a tenth part of their produce in consideration of his undertaking the Government of the country. The idea of the supreme ruler being also the supreme landlord has not obtained here that fixity which it has in India.

In the Indian Booddhist Code, which under the title of the Laws of Manoo* the Burmans have altered and adopted to the necessities of their own country, there are said to be seven ways of acquiring a title to land, they are :—

1st.—by royal gift, made only to soldiers and civil officers.
2nd.—by inheritance.
3rd.—by purchase.
4th.—by allotment by government officers.
5th.—by reclaiming from forest.
6th.—by gift.
7th.—by unchallenged occupation for ten years of lands which formerly had no other owner.

Of these the two first are said to be perfect and the remainder imperfect, *i.e.* disputable tenures.

In practice there may be said to be but one original foundation for land tenures in Burma, *viz.*, that the cultivated land-clearer acquires an absolute dominion over the soil, subject only to contribution for the service of the state. He can alienate it by gift or sale, and in default of his doing so it descends to his heirs in the usual order of succession. The title to land therefore is essentially allodial. Land has always been held in fee simple, the whole right and title being vested in the owner, *i.e.* the original occupier, and his heirs and assigns. The right of private property in land has always been as fixed and certain and as absolute as it can be in any oriental despotism, where the lives and property of every subject are entirely dependent on the will of a single autocrat.

The attachment of the people to the arable portion of their landed property has always been strong. As long as a family continues to reside in the vicinity of their ancestral land they will never wholly relinquish their title to it. Land under Burman rule was never sold in the usual acceptation of the term. It was frequently conveyed for a price from one person to another and though the transaction was styled a sale, and not a mortgage, it was fully understood that the vendor retained a right to re-purchase the land at any time he liked, and that the emptor could not re-sell the land without the consent of the original vendor. And yet few

* This has nothing in common with the Indian "Institutes of Manoo".

cases can now be found in which landed property has remained for many generations in the same family. This result, which at first sight seems incompatable with a strong attachment on the part of the people to the soil, is due to the constant state of anarchy arising from wars and rebellions and the imperfect control which has been exercised over the provincial governors ever since the downfall of the Pagan kingdom (1298 A.D.). The ever-recurring social disorders impelled the people to constant changes of residence and one governor in order to increase the population of his district would offer rewards to encourage people to desert his neighbours' jurisdictions. This led to frequent abandonments of land which would never have taken place had circumstances permitted the owners to continue to reside in its vicinity.

To the general allodial tenure on which lands were held there were two insignificant exceptions. A portion of the fields in some village tracts was assigned for the maintenance of the village Thoogyee, and was known as the Thoogyee-tsa fields. The Thoogyee for the time being, could cultivate these, or let them to any one he liked.

Lands known as bhanda or crown lands* also existed; such lands were the private property of the crown and were cultivated either by "lamaing" (crown predial slaves) or by the people of the vicinity without remuneration, the whole of the proceeds belonging to the King.

Under the Burman Government, therefore, there existed only the following land tenures.

1st.—Petty allodial properties; the owners cultivating their own lands or letting them to tenants, the owner being subject to payment of revenue yearly† either to the state or to the custodian of any sacred buildings to which lands might have been dedicated.

2nd.—Thoogyee-tsa tenures.

3rd.—Bhanda tenures.

Under British rule these last two tenures have disappeared; the occupiers of such lands being placed on the same footing as other cultivators.

Under the Burmese customary law lapse of time *per se* does not appear to have been considered sufficient to bar a claim to land.

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* Literally Treasury Lands.

† There was, however, properly speaking, no such thing as land revenue in our sense of the term under the Burman Government—*i. e.* the area of a man's land was never taken as a basis on which to calculate the amount of revenue he should pay.

A person who had once cleared or had been in possession of land could, by proving such fact, establish his title to recover unless the parties in possession had been for ten years in unchallenged enjoyment of it.

Waste lands are by the customary law of the country open to all comers; any one can select a piece of such land at his pleasure and clear and cultivate it, paying his tax upon it when the time for the annual assessment of land revenue arrives. If he desires to hold his land revenue free for a term of years until he has brought it into thorough cultivation he has to apply to the Thoogyee of the circle if the land is not more than five acres in extent, or to the Assistant Commissioner if it is above five and less than fifty, or to the Deputy Commissioner if it is over fifty acres in extent. The land having been surveyed, he then obtains a grant rent-free for a term of years, more or less according to the description of jungle upon it; one year being the shortest and seven years the longest term of rent-free tenure if the land is required for rice cultivation, and twelve years being the longest if required for orchard cultivation. Should the land, however, require an expenditure for other purposes besides mere jungle clearing, such as erecting dams or digging irrigation channels, he receives extra periods of exemption.

The average size of the farms varies considerably; it is probably smallest in Thayet and largest in Rangoon. It varies from about five to about sixteen acres though there are many holdings containing much more than this.

Prices.

The prices of all articles has risen enormously since the British occupation of the country and this is due to several causes; the removal of all restrictions on trade has induced a demand for goods for export, whilst the effort to supply this demand has led to a vast increase in the area brought under rice, a largely-increased population and a greater demand for imported articles; at the same time immigration has been fostered by the great facility for obtaining land which produces a highly remunerative crop, and by the security to life and property under British rule. Demands both ways have increasd and therefore prices have risen. But owing to the great demand for labour and to the high prices wages, comparatively speaking, have remained high, far higher than in India.

The rise was at first sudden and rapid but, except as regards unhusked rice, has not been great of late years, and prices have some times fallen.

The grain market has never fallen but the price has fluctuated month by month.

The price of rice before and for a year after the second Burmese war was, per 100 baskets, in rupees :—

Year.	Unhusked rice.	Cargo rice.	Husked rice.	Remarks.
1848-49	8	22	31½	
1849-50	12	28	60	
1850-51	15	35	75	
1851-52	18	40	75	
1852-53	35	65	100	During six months the price of rice rose in consequence of the scarcity then existing from Rs. 350 to Rs. 400 per 100 baskets.
1853-54	40	65	100	
1854-55	45	70	128½	
1855-56	53	95	132	

In 1864 rice in the husk sold in Rangoon at Rs. 100 per 100 bushels and the price at the mills during each of the last seven years has been :—

Year.	January.	April.	July.	October.
1872	55	54	64	64
1873	60	61	60	65
1874	83	98	76	81
1875	50	58	57	67
1876	55	69	82	88
1877	72	88	135	145
1878	93	130	124	125

To the existence of an abundance of good land, to the facility with which rights over it can be acquired, to the great demand for its produce and the still greater local demand for European goods, to the, if higher than formerly as the peasants assert yet, fixed taxation and the cessation of all irregular and uncertain collections, and to the absolute personal security enjoyed by all under the English administration are due the increase in population, the astonishing increase in the revenue, the still more astonishing increase in trade which, as will be seen in the following chapter have taken place since British Burma became British territory.

CHAPTER XIV.

POPULATION, REVENUE AND TRADE.

Population.

An account of the principal races forming the permanent population has been given in Chapter IV.; besides these there are scattered over the land representatives of many others, some who have made this their home and others who are here only to make, or to try to make, their fortunes. For centuries Arakan and Pegu were resorted to by Mahomedan traders and subsequently by European adventurers and for many years before the first Anglo-Burmese war Rangoon, especially, was the resort of men of desparate fortunes and of almost every nation under the sun. Englishmen, Frenchmen, Portuguese, Venetians, Dutchmen, and even Russians, jostled Americans, Parsees and Moguls, whilst all were looked down upon by the Talaing and Burmans and their insolent rulers. The early European travellers give descriptions which would seem to shew that the seaboard tracts, at any rate, were exceedingly populous but there can be little doubt that these estimates were far too high. Father Sangermano, writing at the end of the eighteenth century, gives two millions as the population of the Empire, which then included Upper Burma as well as what is now British territory, and Colonel Symes, who, however, seems to have seen everything through rose-coloured spectacles, thought that it amounted to seventeen millions, which Cox a little later reduced to eight millions. When Arakan and Tenasserim were ceded to the English after the first Anglo-Burmese war they were found to be almost depopulated; a census taken in Arakan in 1829 made the population to number 121,288 and the returns for 1832 give it as 195,107. This increase of 60·86 per cent. was due to an influx from Pegu and to the return from Chittagong and other places further west of numbers who had fled thither on the conquest by the Burmans in 1784 and subsequently. Ten years later it had risen to 246,766 and in 1852 to 352,348. The second Burmese war then broke out and immigration was checked, and as the result of the war was the annexation of the rich delta of the Irrawaddy where excellent land was only waiting to be taken up it never re-assumed its former proportions, and in 1862 the inhabitants numbered 381,985.

What is now called Tenasserim once had a large population; Tha-htoon, Doon-won, Mya-wa-dee, Wa-kha-roo, Tavoy, Metta, Tenasserim and many other places were large and populous towns,

but all, except Tavoy, are now only villages or exist as uninhabited ruins. The wars between the Burmans and the Peguans laid waste Martaban and the wars between Siam and Burma the country in the east and south. In 1772 a Talaing Chief rose in rebellion in Amherst and being defeated escaped into Siam with numerous followers; in 1781 Myat Poo rebelled in Tavoy and carried off many Talaing and Burmans to Siam; in 1808 the Daing-won at the head of a large army went south to repel an invasion in Tavoy and Mergui and plundered, robbed and murdered wherever he went; in 1814 another great outbreak took place in Amherst headed by Thwot Paw who carried away many of his followers, bringing up the number of enforced emigrants between 1772 and 1814 to, it is alleged, 200,000, and again in 1824 Meng Kyaik passed over the hills with many Talaing families.

After we had taken possession of Tenasserim it was found to be so poor and so sparsely populated that the question of restoring it to the King of Burma was seriously debated. The country then included the present Mergui and Tavoy districts and Amherst on the east of the Salween as far north as the mouth of the Thoung-yeng with Bhee-lòo-gywon, and the number of inhabitants was estimated at 70,000 in 1826 and at 84,917 in 1835-36; in 1845-46 it was reported to be 127,455, 191,476 in 1852 and 394,264 in 1862, when Shwe-gyeng and Martaban had been added. The increase was greatly due to an influx of Talaing from Pegu where, after the British troops were withdrawn, they rose in rebellion against the Burmese and being worsted fled in large numbers from the delta of the Irrawaddy. Martaban which passed to the British in 1852 had 150,000 inhabitants in 1825 and only 87,000 when we got it.

The once rich Pegu with its teeming population and its large cities was devastated by continual wars whilst some of the Talaing rulers exercised their ingenuity in torturing and murdering their subjects. Towards the end of the sixteenth century Bhoo-reng-noung on one single occasion burnt ten thousand to death and at the end of his reign the country was depopulated. Writing of what he saw in 1600 Boves describes the ruined temples, gardens, and cities, and the fields covered with the dead bodies of those who had perished by pestilence, famine and the sword, whilst the rivers and streams were choked with floating corpses.

The country was too disturbed for some time after the conclusion of the war for the collection of accurate statistics and probably the returns for 1855 which give the number of inhabitants as 631,640 are not to be trusted. In 1858 the population was returned as 890,974 and in 1862 as 1,244,385.*

* Toung-ngoo, now in Tenasserim, is included.

In that year the province was formed by the amalgamation of Arakan, Pegu and Tenasserim, and the population since has been :—

1863	...	2,092,331	1871	...	2,491,736
1864	...	2,196,180	1872	...	2,747,148
1865	...	2,273,049	1873	...	2,741,063
1866	...	2,330,453	1874	...	2,815,298
1867	...	2,329,312	1875	...	2,898,336
1868	...	2,395,985	1876	...	2,942,605
1869	...	2,463,484	1877	...	3,011,614
1870	...	2,562,323	1878	...	3,088,902

Taking the three divisions separately the population in 1878 was, Arakan 518,741, Pegu 1,888,066 and Tenasserim 682,095.

The returns have always shewn an excess of males and in 1878 the figures were—males 1,557,761, females 1,453,235. This difference is easy of explanation: Burma receives every year large numbers (from 80,000 to 100,000) of immigrants of whom more than half are coolies from Upper Burma, the remainder being from Madras and Chittagong and it very rarely happens that they bring their women with them; of these immigrants many return to their own homes at the end of the busy season (but probably some 20,000 yearly remain permanently or for some years). The figures of the census of 1872 support this view, that the large number of males as compared with that of females is due to a steady immigration of males only, for they shew the proportion of females to every 100 males in the several leading races of the province to have been :—

Races.	On total population.	On estimate of resident population of similar race.
Booddhists	94·28	97·92
Mahomedans	68·37	97·40
Hindoos	26·70	——
Christians	82·70	95·80
Others	90·50	——

The conclusions warranted on this point by the census may conveniently be given in the words of the report :—

(*a.*)—For the whole province there is a very large excess of males.

(*b.*)—This is mainly due to the presence of a large foreign element which consists almost entirely of males.

(*c.*)—In the districts in which there are fewest known disturbing causes the disparity in the numbers of the sexes is the smallest.

* These figures are taken from the Administration Report and are founded on the census which included the floating population.

(*d.*)—The proportion of the sexes amongst the indigenous population is very nearly equal.

(*e.*)—There are more male children born but the females are longer lived.

(*f.*)—But for the adult male immigrants an equality of numbers in the two sexes would nearly be reached at the middle periods of life.

Excluding the two large towns of Rangoon and Maulmain the latest returns give the population as 2,943,111 and the number of houses as 583,407 or 5·04 inhabitants to each house.

The number of inhabitants to the square mile naturally varies according to the nature of the country: thus in the mountainous districts of Sandoway, Mergui and Tavoy, it is 15·48, 6·68 and 10·98 respectively, whilst in Rangoon, exclusive of the town, it is 67·64. The average of each division is—Arakan 34·73, Pegu (excluding Rangoon town) 66·70 and Tenasserim 14·37.

With the large general increase in population there has been a great increase in the number of villages and in the population of the towns. The former increased from 12,845 in 1867 to 13,977 in 1872 and to 14,134* in 1878, whilst the population of the latter was :—

Towns.	1863-64.	1868-69.	1873-74.	1877-78.
Akyab	14,996	15,743	16,346	19,103
Kyouk-hpyoo	..... †	2,720	2,562	2,467
Sandoway	..... †	1,506	1,613	1,617
Rangoon	61,138	72,675	80,096	91,458
Pegu	9,570	3,317	4,337	5,524
Gnyoung-doon	7,909	6,686	9,462	9,290
Pantanaw	6,739	4,899	5,205	5,820
Donabyoo	..... †	3,136	3,950	4,099
Bassein	26,511	18,530	21,279	21,816
Le-myet-hna	5,934	5,678	5,051	3,664
Henzada	9-177	14,551	15,307	16,276
Kyan-kheng...	..... †	7,675	8,477	8,769
Myanoung	7,129	5,829	5,641	5,796
Za-lwon	..... †	2,989	5,105	5,189
Kanoung	..... †	2,943	3,093	3,315
Prome	20,888	25,095	25,631	26,826
Shwe-doung...	..... †	9,945	12,518	13,588
Poung-day	..... †	5,549	5,101	5,390
Maulmain	60,889	66,022	53,873	54,330
Tavoy	13,133	15,253	14,575	14,795
Shwe-gyeng	7,714	7,651	7,057	7,528
Mergui	9,384	10,216	10,200	10,751

* The villages shewn in the published returns as included in the town of Rangoon are excluded.

† Not given in the returns.

These may be divided into three classes—those which have fallen off or remained almost stationary, those which have but slightly increased and those in which the rise has been great. The first class again may be sub-divided into those in which the falling-off is due to special and those in which it is due to general causes. Amongst the first are Pegu and Myanoung, and here the diminution is due to administrative changes as the sudden fall shews, the removal of large establishments which entailed the removal of those who supported them; their prosperity was artificial. Amongst the second are Kyouk-hpyoo, Sandoway, Pantanaw, Le-myet-hna, Poung-day, Tavoy, Shwe-gyeng, and Mergui; in the case of these, the explanation is to be sought in their geographical position, either not on any line of trade, or so situated as to afford exit to but a small quantity of the produce of the country. Maulmain should stand apart; it rose rapidly owing to the timber trade and to its being to some extent the port of Pegu before the annexation of that division and has suffered since from the greater facilities offered by its rival Rangoon. Similarly Akyab has to some extent suffered from the same cause and the increase has not been large. On the other hand, Prome, Shwe-doung, Gnyoung-doon, Kyan-kheng, Henzada, and Za-lwon, have increased largely; they are on the bank of the Irrawaddy and are great trading places. The figures for Bassein in 1863-64 are open to considerable doubt, and Rangoon has affected it as well as Maulmain and Akyab.

Revenue.

When Arakan and Tenasserim were ceded in 1826 it was found that the Burman Government had not adopted the old methods of raising a revenue but had imported their own, which they employed everywhere and still employ in what remains to them of the ancient kingdom. The country was divided into governorships and each such governorship was allotted to an official of the Court or to a member of the royal family as a source of revenue. This person, called a *Myo-tsa* or "eater of the governorship", never visited it but annually received from it a fixed amount, remitted by the local governor, and over and above this a fixed percentage on it was sent for the Myotsa's secretary, clerk, and treasurer; this fixed revenue demand was divided out amongst the circles according to the governor's estimate of their means, and similarly by the thoogyee of circles amongst villages and by the village head men amongst the house-owners according to their views of the house-owner's capability of paying, the land cultivated by each serving as a guide; thus though the gross amount varied little year by year its incidence varied considerably. There were besides many other imposts; a tax in kind on every plough, the

grain being stored in public granaries, supposed to be ten per cent. of the produce but in actual pratice arbitrarily assessed; a tax on brokerage, transit dues, dues on the sale of cattle, varying dues on produce of kinds, dues levied from fishermen, &c., not all levied in the same governorship but one or more in one and others in another. Then there were fees on law suits and criminal fines and special remittances to be made to the capital as presents from the Myo-tsa and the local officials to the king at the commencement of each year, the cost of which was wrung from the people, and lastly each tract was required to support the men who were annually called out to protect the frontier or specially for some particular duty. The local officials received no regular salary but were paid by a portion of these fees and dues and it was their interest to squeeze as much as they could or dared. Added to all these there were extraordinary contributions to the crown called for on public emergencies, the amount being fixed by the king's government at the capital, as for instance in 1798 when a call of thirty-three and one-third ticals of silver was made from every house; this took two years to collect and produced about Rs. 6,000,000. What the actual amount levied from the people was it is impossible to ascertain.

The systems adopted by the British Government in Arakan and Tenasserim differed. In Arakan the assessments were not made directly on the people but the thoogyee were dealt with as large land-holders owning their circles and they were required to pay in a fixed amount, and each had his agent residing at head-quarters. A year or two later, in 1828, the revenue was fixed at Rs. 316,856 and the thoogyee no longer collected as much more as they liked but received ten per cent. on their collections, making the nett revenue Rs. 285,170, at the same time the rate of tax was fixed and levied according to the number of ploughs used. In 1831 another change was made, the thoogyee received fifteen per cent., the rwagoung four per cent., and the tsa-re or village writers two per cent. A capitation tax had been imposed almost from the first and in that year was fixed at Rs. 5 on married men, Rs. 3 on widowers and Rs. 2 on bachelors, and endeavours were made to assess the cultivated land by actual measurement instead of by the plough. Salt formed another source of revenue. Golahs or storehouses were established and the thoogyee were allowed to pay in the demand against them in salt at the rate of seven annas per Bengal maund, and the Government bought as much as they could from the people at the same rate; this salt was exported to and sold in Bengal. The rate was subsequently reduced to five annas and in 1831 was raised to six

annas. This was not found to answer and a few years later another scheme was adopted; the people were encouraged to manufacture and shippers from Chittagong and the coasts of Madras were encouraged to purchase the produce for delivery into the Government salt stores at Chittagong at a fixed rate. This was a decided improvement but the people desired to have a guarantee that they would be able to sell their salt at a fixed sum previously agreed upon and in 1839 this was given to them; salt stores were again established at Kyouk-hpyoo and the manufacture soon increased. A large demand for boats sprang up so that the salt manufacture gave employment to boat-cutters, boat-builders, fuel-cutters, boat-men, pot-makers, labourers to assist in the manufacture and middlemen who bought up the salt at the kilns and sold it to the government officers in Kyouk-hpyoo. A few years later the purchases were limited owing to the large quantity accumulated in Chittagong and when, still a few years later, the Government wished to purchase largely the manufacture had so fallen off that great difficulty was experienced in getting the required quantity. The salt godowns were done away with in 1863 but before that a small duty had been imposed on each pot used in the manufacture. Fishermen had to pay for the use of nets and traps according to the kind used, but this source of revenue was abolished and was not re-imposed till 1864-65 when ponds and lakes also were rented out. When Arakan was united to Pegu the main heads of revenue were:—land, capitation tax, salt tax, sea customs (first imposed in 1854), port-dues, fines and fees on criminal processes, sale of stamps (postage and judicial) and income tax.

In Tenasserim the system of levying the land revenue introduced by us was as follows:—All the villagers at each village were assembled and from their declarations and from the accounts kept by the village headmen of the extent of cultivation a general average of the produce and a commutation price for the grain was proposed and the Government share was fixed at one-fifth of the gross produce and paid in kind, at the same time remissions were made in each case when the crops were damaged or destroyed; some years later money payments were introduced and payment in kind abandoned. The collection of revenue was left to the thoogyee, who were generally elected by the land-holders, who in some instances received a stated salary and in others a commission on the amount collected. Besides the assessment on the land the other items which formed the source of the revenue were, salt, balachong or fish-paste and elephants' tusks, which were assessed at ten per cent. the first year and at twenty-five per cent. the next; in Tavoy and Mergui a similar impost, similarly

raised, was put on torches; the rate on tin was ten per cent., and on rattans twenty, while the lease of excise farms, turtle-banks, edible birds-nest caves and fisheries, twenty-five per cent. on garden produce, and the rent of Government lands formed the remaining principal sources of revenue. Under the head of excise were included gambling farms; the plan was adopted on our first occupation in accordance with the system then in force in the Straits Settlements: the receipts from this source in Mergui and Tavoy during the first year were Rs. 500 and during each of the two following years Rs. 2,400. The Hpoongyee of Tavoy appealed by deputation asserting the encouragement of gambling to be a fruitful source of evil to the morals of the people and pointing, with painful truth, to its ravages among the women, and the farms were abolished.

The pearl-fisheries were expected to yield a large revenue and six divers were obtained from Madras to test the resources of the islands of the Archipelago but the pearls were all seed pearls and the fisheries were abandoned.

In 1829 arrangements were made for regulating the timber trade and the revenue to be derived therefrom, and this increased very rapidly.

Gradually changes were introduced and in 1840 the revenue derived from the land, fisheries* (except those disposed of at public auctions for given periods), salt, ivory, cardamoms, oil seed, and salt-kilns was collected by the thoogyee or in some special cases by heads of villages. Excise (liquor and opium) farms were sold yearly as well as the right to collect edible birds-nests and (at Amherst) lime for betel chewing; pilotage fees were levied at Amherst, whilst government markets yielded a small local revenue.

A special poll tax had been imposed upon the Kareng as the only means of getting revenue from them, this was at first fixed at Rs. 15 for each family and was subsequently reduced to Rs. 8 and Rs. 12. In some parts of Amherst, where this race had gradually fallen into more settled habits, the tax was assessed amongst themselves when some paid as much as Rs. 20 and others not more than Rs. 3. In 1840 the rate was reduced by one-fifth and in the following year entirely abolished.

In 1842 the revenue from the land was levied by the area cultivated and at fixed rates and the old commutation system was partially got rid of but was not completely done away with till 1845

* A fisherman who was also an agriculturist paid somewhat less than a fisherman with no other employment.

when unauthorized levies of grain at reduced prices were absolutely prohibited and the rates of assessment on the land were generally lowered.

But few changes were subsequently made and in 1862 when Tenasserim was united to Pegu the sources of revenue consisted of a demand per acre on land, a capitation tax, which had been introduced much earlier, a duty on salt, fishing nets, forest produce, the rent of fisheries, excise on spirits and drugs, sea customs, port dues, fees and fines in criminal cases, sale of stamps (postage and judicial) and income tax.

The amount remitted from the various districts of Pegu before the second Anglo-Burmese war has been ascertained with some approach to accuracy. The revenue was paid in Rwek-nee silver and taking a viss (lbs. 3·65) or 100 ticals of this as equal to Rs. 130, the annual remittances were, from :—

				Rs.
Rangoon*	...	...	...	687,370¶
Bassein	...	...	...	282,500
Henzada	...	...	...	202,210
Tharrawaddy	...	...	...	99,060
Promet	...	...	...	167,960
Toung-ngoo	...	...	...	30,060
		Total	...	1,469,160

But as the local officials received no regular salaries but were paid by the fees and fines in cases tried by them and by what they could wring out of the people an addition of at least two-thirds must be added, bringing up the revenue demand to about Rs. 2,448,600. To this again must be added payments in service and in kind as, for example, in Henzada where one township furnished tèn per cent. of the rice crop, and Tharrawaddy whence lbs. 365 of honey, lbs. 365 of bees-wax and 100 mats were sent in annually. The sources whence the revenue generally was derived were a tax upon each family, a tax upon the land cultivated, according to the yokes of cattle employed (in Prome and nowhere else half the produce was taken from some lands and no other demand was made on the occupiers), a tax on fisheries, transit dues, taxes on palm trees, on teak and other timber and brokers' licenses. The local rulers of Thayetmyo had to make large presents on the accession of each Sovereign ; at one time all money tribute from Meng-doon was remitted and the people had instead to keep up a fixed number of war boats fully equipped and 500 soldiers. When Pegu was annexed the whole country was brought under one uniform

* Including between them the present Thoon-khwa district.
† Including the present Thayet
‡ Now in Tenasserim
¶ Including Rs. 260,000 Customs dues

system; brokers' fees and transit dues were abolished, the family or house tax was converted into a capitation tax levied at a fixed rate from each person liable, the land assessment was regulated by the area cultivated, the fertility of the soil and the conveniences for bringing the produce to the nearest market, the salt tax was retained, in lieu of arbitrary fees on judicial cases fixed fees were levied by means of stamps, and the fisheries were first sold by auction and subsequently leased within defined limits for an annual fixed sum to the villagers living in the vicinity.

When Pegu became British territory the revenue raised from the three provinces was, Arakan Rs. 1,274,294, Pegu Rs. 2,977,538 and Tenasserim Rs. 1,066,090 or Rs. 5,317,922 in all. Rather less than ten years later, when the three provinces were joined to form the existing province, the revenues were, Arakan Rs. 1,820,966, Pegu Rs. 5,700,216 and Tenasserim Rs. 1,875,494, or Rs. 9,396,676. At the close of the next decennial period the amount had risen to Rs. 14,203,160 and during each of the succeeding six years it has been, in rupees—

1873-74	15,317,240
1874-75	15,272,960
1875-76	17,928,450
1876-77	17,724,080
1877-78	17,843,580
1878-79	20,192,770

Besides this, which is credited to imperial and provincial services, a considerable amount is raised by municipalities and for local purposes, such as the payment of the rural police, local mail services, education, local roads, &c., and this in 1878-79 was Rs. 1,992,960, so that the whole amount raised was Rs. 22,185,730 deducting expenditure and excluding municipal and local funds receipts and charges, the nett aggregate surplus of the last eight years has been Rs. 65,115,020. In 1878-79 after deducting all charges including those for the military (Rs. 2,723,410), Rs. 7,189,490 was the amount available for remittance to India of which Rs. 5,125,000 was remitted in cash. The icidence of taxation of all kinds per head of population was Rs. 7-3-0.

Trade.

For many centuries the seaboard has been visited by ships from many quarters, indeed according to one author, who is no mean authority on most points on which he treats, Burma is the Ophir whence Solomon obtained his gold. In the early years of what may be called the historical period we find Arabs and other Asiatic races in constant communication with Burma, and towards the beginning of the second half of the fourteenth century Portuguese and Mahomedans carried on a brisk trade between Burma and the countries

east and west, whilst the Arabs imported goods of European manufacture as well as the produce of their own country.

From Fitch, the first Englishman who visited Burma, and from other traders we learn that in the fifteenth and sixteenth centuries the trade had, probably owing to the continual wars and internal disorders, considerably fallen off. "In India there are few "commodities" writes Fitch "which serve for Pegu except opium "of Cambaia, painted cloth of Saint Thome or of Masulipatam, and "white cloth of Bengala, which is spent there in great quantity. "They bring thither also much cotton yarn, red coloured with a "root they call saia, which will never lose its colour, it is very "much sold and very much of it cometh yearly to Pegu. By "your money you lose much."

The trade of Madras and Calcutta was principally with Cosmin; of Mecca (Arabia and the Persian Gulf?) with Syriam to which were brought woollen cloths, scarlets, opium, and chickinos; and of Malacca and places to the eastward with Martaban, the imports being "porcelain of China" camphor from Borneo, and pepper from Acheen; we know also that there was much communication between Bassein and Ceylon. The import trade would appear to have been a losing one but the losses incurred to have been fully made up by the gains on what was carried away. The principal exports were the precious metals, precious stones (no duty was levied on rubies, sapphires, or spinels), benjamin, long pepper, tin, lac, rice, and some sugar. Cæsar Fredrick speaks of Mergui as a place where every year ships went for "veizine, sappan-wood, nyppa, "and benjamin", and James Lamarter, writing in 1592, relates how he waited at Point de Galle "for ships from Tenasserim a great "bay to the south of Martaban in the kingdom of Siam". Up to the conquest of Arakan in 1784 the Dutch used to obtain rice and slaves from that country. Whatever detailed records there may be, and there must be many, of the trade of Arakan, Pegu, Mergui, and Tavoy, are locked up in the archives at Madras and I have not been able to gain access to them; these, no doubt, would throw considerable light upon the actual and desired mercantile transactions at Bassein and on the imports into and exports from Mergui. The whole of the southern portion of what is now known as the Tenasserim division is a wild and mountainous country and it can have produced but few articles for export except tin; it was visited by "the Guzerat vessels which come to Siam in June and July, "touching by the way at the Maldive islands and then at Tenas-"serim, whence they go over to Siam in 20 days", and Fitch notices that large quantities of tin were brought up from the south to Pegu and exported, indeed he says that in his time all India

was supplied with that metal from Tavoy island; this could only be, as modern geological enquiries have shewn, from Tavoy and Mergui. The whole of the delta of the Irrawaddy was, almost from the beginning of the fourteenth century, the scene of wars terribly destructive to life and which have been the main cause of the present depopulation of the country, whilst the enormous armies which were kept up aggravated the evil. The Talaing rulers appear always to have been more inclined to foster, or perhaps rather less inclined to hamper, trade, which flourished more in their days than when Pegu was subject to Burma.

The Dutch seem to have held Negrais for a short time very early in the seventeenth century and the English to have commenced a regular trade with Pegu at about the same time, when there were factories at Syriam, Prome and even at Ava and Bha-maw.* The Dutch also had factories at Syriam and at Bha-maw and the Portuguese, who had long preceded the English, were in great force at the former under the notorious de Brito y Nicote. Differences soon arose and all three were expelled but ships continued to trade and in 1680 and again in 1684 unsuccessful efforts were made by the English to obtain permission to re-open factories, especially at Bha-maw. In 1687 Captain Weldon took possession of Negrais and in 1688 the Talaing Governor of Syriam asked the Governor of Madras to re-establish a factory there, but the request was for some reason refused. Trade languished until 1709 when some English merchants settled at Syriam and from that year till the conquest by Aloung-bhoora trade between Burma and the British possessions was carried on freely. The war between the Burmans and the Peguans checked all commercial transactions, the more especially as Aloung-bhoora would not permit the establishment of any factory in the country. Towards the end of the century, however, trade sprang up again, but entirely altered, for the export of silver and precious stones was prohibited and vexatious transit duties and port charges were imposed.

According to Father Sangermano "The external commerce "of the Burmese is with various nations. The Chinese of Junan "(Yunan) coming down by Canton (Kwang-tung) and the great "river Ava, bring to the Burmese capital in great boats several of "the commodities of their country, as wrought silk, paper, tea, "various kinds of fruits, and other trifles, and return laden with "cotton, raw silk, salt, birds' feathers, and that black varnish

* A Burmese town on the left bank of the Irrawaddy at the mouth of the Ta-peng, two hundred and fifty miles above Ava, where the trade route from China debouches on the main river. The factory was at old Bha-maw which is some distance up the Ta-peng.

"which, as we have said, is distilled from a tree* ; this prepared "and purified is the celebrated commodity known by the name of "Chinese varnish."

"The excellence of the ports of Pegu and the richness of the "productions of the Empire attract merchants with their vessels "not only from all parts of India but from China and Arabia. "The river of Rangoon, the mouth of which is the same as that of "Seriam (the Pegu river) affords a station for ships at once easy of "access and defended from the wind. The river of Bassino "(Bassein) forms a harbour which is still more secure and from "which ships may sail at all seasons, which is not the case at "Rangoon by reason of the south-west wind which often prevails. "The dangerous shallows and formidable calms of Martaban hinder "any but small barks from entering its port. Tavai (Tavoy) has "a commodious port, and vessels may ride at anchor in the mouth "of its river under the shelter of two or three small islands. The "sea in the vicinity of Merghi (Mergui) is full of little islands, "among which, as in secure roads, vessels may winter, sheltered "from every wind, or be repaired in the greatest security.†

"But of all the ports of Pegu that of Rangoon is the principal, "in fact it is the only one of importance, for this is one of the "most populous cities of the kingdom, the residence of a governor "and viceroy, and it has an easy and continual communication "with the capital and the principal places of the empire by means "of the river along which all their various productions are brought "to it to be again disposed of to the merchants, both native and "foreign, with whom the city is crowded. Until the year 1790, "Bassino enjoyed the same privileges, but when it was given as an "appanage to one of the children of the Emperor the mandarins "who were sent to govern it committed so many and such cruel "injustices and vexations that no merchant dared to approach the "place. It may therefore be said that the commerce is entirely "concentrated in Rangoon where it is exercised by the inhabitants "as well as by a number of Mahomedan Moors. some Armenians "and a few English, French, and Portuguese, who have taken up "their residence there. The ships that come from China and the "Malay coast, which latter are for the most part English, bring in "cargoes of areca and other merchandise as silks, nankeen, porce-"lain, tea, &c. The commodities, however, which have the best "sale at Rangoon and return the highest profit are the sugar and "muslins of Bengal, the linen of Madras, and particularly the

* Thit-tsee, obtained from the *Melanorrhœa usitatissima.*

† It was here that the French ships often lay during the wars between the French and English in India, and a bay in one of the islands is still known as French bay.

"white and coloured handkerchiefs, which are here universally "used for covering the head. Sometimes also vessels arrive from "the Isle of France laden with merchandise that yields an exor-"bitant profit such as pottery, muskets, looking-glasses, and "articles of iron and brass, with woollen cloths of various colours, "which are eagerly sought after in this country, particularly when "they are of two colours, for although they are not used for "clothing yet they are in great request as coverlets at night, as "also for wearing on the shoulders in the daytime like a mantle. "The English ships also bring in quantities of these stuffs. Such "are the principal commodities brought in by sea, though there "are some others of minor importance, consisting chiefly of various "drugs and spices, raisins, almonds, coffee and other natural pro-"ductions of Persia and Arabia, which are brought by the ships "of the Burmese themselves * * * * *.

"The commodities which the Burmese export in return for "those just mentioned are lac, catechu, and isinglass when the "ships are destined to China or the Malay coast; the lac and cate-"chu are used by the Chinese in their colours, the isinglass for "glue. But if the vessels are bound for the west, that is for Ben-"gal, the coast of Coromandel, the Isle of France, &c., the cargo "generally consists of vegetable oil, petroleum, and above all teak-"wood, either as masts for ships or cut into planks of different "sizes; indeed it is for this wood more than for anything else that "vessels of every nation come to Pegu from all parts of India: "it is found also in Bombay but in small quantities and is exces-"sively dear whereas in Pegu and Ava there are such immense "forests of it, that it can be sold to as many ships as arrive at a "moderate price.

"This wood, while it does not quickly decay is very easily "wrought and very light. Cases have occurred of ships made of it "and laden with it which have been filled with water, and yet did "not sink. Hence all the ships that come to Pegu return with "cargoes of this wood, which is employed in common houses, but "particularly in ship-building.

"Most of the ships that arrive in these ports are here careened "and refitted; and there are besides two or three English and "French ship-builders established at Rangoon. One reason of "this is the prohibition that exists of carrying the specie out of "the Empire, for as merchants after selling their cargo and tak-"ing in another of teak wood generally have some money remain-"ing in their hands they are obliged to employ it in building a "new ship. Though perhaps this is not the only motive for "building vessels in Rangoon, but the quantity of teak and other

"kinds of wood with which the neighbouring forests abound may "also have a great influence in this way.*"

Sonnerat, writing in 1782, says "voyages to Pegu are no "longer as lucrative as they used to be. In order to gain those "vessels which do come are obliged to put in at Acheen whither "they carry muskets, powder, small cannons, cloths, gold thread, "lace and broad cloth, receiving in exchange, benjamin, camphor "and gold on which only four per cent. is made; other articles give "only a small return. * * * The vessels which go to Pegu take in "at Acheen areca nuts as part of their cargo; they must be pre-"pared in a different way from those taken to the coast of Coro-"mandel and in consequence vessels have to wait for nearly four "months. They complete the cargo by taking in cocoanuts at "the Nicobars. These two when sold in Pegu give a profit of "from 3,500 to 4,000 per cent. (*trente-cinq à quarante pour un*) * * *. "Teak which is exported is excellent for ship-building and well "suited for cabinet work. It lasts in water to such an extent that "it is not uncommon for vessels built in Pegu to last a hundred "years. The country itself is exceedingly rich; it contains mines "of gold, silver, copper and tin. The iron, which is softer than "ours, is found in lumps of from fifteen to twenty pounds (*French*) "weight, pure and ready for working. Rubies although very com-"mon are valuable, but they can only be exported by smuggling: "if any one was caught the punishment would be an enormous "fine and possibly imprisonment and the confiscation of the "ship.

"Sapphires, emeralds, topaz, aquamarina, are found * * *, "sulphur and dammer are common and good * * * the other pro-"ducts are indigo, cashew, ivory and fish, and vegetable and mineral "oils * * *. The most paying article would be saltpetre which "is as common here as in Bengal, but its exportation is strictly "prohibited and has never been allowed by the king."†

Alluding to the restrictions on the internal trade, Father Sangermano records that "another imposition is likewise in use "in many of the towns lying along the banks of the river, by "which all boats are obliged to pay before being allowed to pass. "Nor is this a trifling source of profit considering that the want "of roads obliges great numbers whom their commercial or other "interests draw to the capital and other great cities to make their "journeys by water. In order to levy these duties small houses, or "rather open porticoes, mostly of cane and bamboo, have been

* A description of the Burmese Empire. London: 1888, pp. 169—171.

† Sonnerat—*Voyage aux Indes orientales et en Chine.* Paris: 1782, Vol. ii. pp. 50—54.

"erected on elevated spots all along the course of the river where "a number of men watch day and night in order that no vessel "pass unobserved. At these places all boats are obliged to stop "to receive the visit of the inspectors and to pay the dues requir-"ed. These consist of a tax according to the size of the vessel, "and a present regulated by the quantity and quality of the mer-"chandize which it carries. These buildings are called ciocche*, "and are very numerous between Rangoon and Amarapura. One "or two belong to the Emperor who employs them for the preven-"tion of the introduction of contraband goods and the emigration of "families from one place to another. The others belong to the "different feudatories whose cities are on the bank of the river "and are said to amount at present to more than twenty-five. "Sometimes these exactions are so oppressive that no one will "venture to transport his goods to Amarapura as any profit he "might hope for from their sale in that city would beforehand be "entirely absorbed by payments at the ciocche. Foreigners in "particular are exposed to the rapacity of the exactors, and unfor-"tunate indeed is he who is so imprudent as to embark his goods "for Amarapura. The visit of the inspectors resemble a robbery "rather than a collection of dues; for besides the usual tax so "much is demanded under the name of presents, and so much is "stolen† that the owners after having passed two or three ciocche, "will generally be glad to hasten back to Rangoon rather than try "the mercy of future plunderers.‡

The restrictions on foreign trade were great and are noticed by all writers. According to Father Sangermano no ship was "allowed to enter Rangoon without being provided with a pilot "acquainted with the navigation of the river, for the city is fifteen "leagues from the mouth. After having cast anchor the Captain "of the ship or some one of its officers must present himself at "the Ron-dai (Roon-daw), which, as we have said, is a large hall "where the mandarins assemble to administer justice, to declare "the nation to which the ship belongs, the place it has come from "and the merchandize it carries. If afterwards anything is found "not mentioned in this declaration, it is considered as contra-"band. The ship is then disarmed, all the cannons, muskets and

* This is the Hindi word *chauki* which, like *shah-bunder* for Collector of Customs, crept into use from the number of natives of India trading in Rangoon and from Europeans coming with Indian antecedents. It is unknown to the Burmans whose name for these toll-houses is "keng".

† Fitch makes a similar remark in his account of Pegu written some centuries earlier. "The slaves of the nobles steal from the merchants," he says, "and no redress is obtainable."

‡ A description of the Burmese Empire. London : 1833 pp. 72, 73.

"ammunition and indeed even the rudder are carried to land. "All merchandize upon entering pays a duty of twelve and a half "per cent. of which ten per cent. goes to the Emperor, the rest "is divided among all the Mandarins in Rangoon."* Sonnerat, in the work already quoted, says "As soon as a vessel anchors "in Rangoon the governor sends orders for the rudder and ship's "guns to be sent on shore, an accurate list of the officers and "crew has to be given as well as of the arms and number of "packages of merchandise and, generally, of everything on board. "The arms and ammunition, the articles for ship's use and the "freight are shewn separately. When this has been done the "governor allots a godown for the storage. Until this has been "done no communication is allowed. The governor then goes "on board with a large retinue * * * * and if, during his visit "he finds anything which has not been declared, even if it be "money, it is confiscated; an officer cannot retain more than "about twenty rupees, for all money must be stored like the "goods, only no duty is levied on it, and care is taken to return "it. When the visit is over the usual presents, consisting of "China plates, sugar, and boxes of tea are made to the governor. "Mercantile transactions are often delayed by these preliminaries, "for until they are completed not a workman can be obtained how-"ever pressing may be the want†".

"The goods landed are examined. The bales are opened so "that the duties may be assessed and paid; ten per cent. in kind "are for the king, for they count nine and the tenth is for him, "the writers and custom's officers get two and a half per cent. "One of the head officials has a right to five pieces but not of "the more expensive ones."

Every possible pretence was used for exacting extra dues. Up to 1810 the sums claimed as ordinary fees amounted to Rs. 1,747 from every ship without distinction. Some small changes were then made but in 1820 the gross charges for a ship of 420 tons were Rs. 1,961. At this period commanders on landing had to go first to the custom-house to be searched, then to the Port officer, then to the place for delivery of the manifest of all cargo, firearms, ammunition, and indeed of every article in the ship, for anything that might be omitted was liable to confiscation, then to the governor, and then to the Re-won; and whenever anyone landed he had to go to the custom-house to be searched. Up to a few years before the Anglo-Burmese war of 1824-25 all square-

* A description of the Burmese Empire, p. 170.

† Sonnerat—*Voyages aux Indes orientales et a la Chine.* Paris: 1782, Vol. II., p. 52.

rigged vessels were obliged to unship their rudders and land their arms, guns and ammunition; ultimately they were relieved from the necessity of unshipping their rudders on paying 32 ticals (Rs. 41) to the local authorities.

The duty charged on all imports was twelve per cent., on all exports except timber five per cent., and on timber one per cent. In the early part of the century the export duties were levied from the importer from the interior but later on from the exporter himself. Ships stores paid half duty, and a new ship built in the river was exempt from charges on her first voyage.

No statistics are available for any year earlier than 1801 and these are for Rangoon only. The average number of vessels that cleared out up to 1811 was from eighteen to twenty-five yearly; from 1811 to 1817 thirty-six, from 1817 to 1822 forty-six, and from 1822 to 1825 fifty-six. In 1822 it was calculated that the utmost amount of tonnage likely to find employment annually between Calcutta and Rangoon was 5,400 tons. In 1802 the value of the imports from the British Settlements in India was Rs. 452,133 (of which Rs. 111,923 were treasure) and in the same year the value of the exports was Rs. 489,758 (Rs. 9,878 treasure). In 1806 the imports (no treasure) had fallen to Rs. 222,187 and the exports (no treasure) to Rs. 471,070. The import trade fell seriously in 1803 and had not recovered but the export trade fluctuated considerably. The principal articles of import in 1805 were woollen piece-goods, opium and broad cloth; and of export, timber, orpiment, pepper and ponies. Seven years later, or in 1813, the value of the imports was Rs. 414,921 and of the exports Rs. 519,891.

In 1824 war broke out and in 1825 Arakan and Tenasserim were ceded but Pegu was restored to the Burmans and trade there gained nothing. From 1826 to 1852 the average annual number of arrivals and departures of ships was only one hundred and twenty-five of which only twenty were European vessels the rest being from the Madras coast, coasting schooners, and junks and kattoos. Heavy duties in kind had to be paid at the rate of twelve per cent. and the conduct of the Burman authorities, who were as exacting as before, led to the outbreak of the second Anglo-Burmese war, the result of which was the annextion of Pegu.

Before the first war large sea-going boats from Arakan used to visit Bengal and bring away British goods, such as muslins, piece-goods, cutlery and crockery, but it was not for some time after the peace was signed that British ships began to arrive for rice, hides and horns.

Akyab was now a free port, all restrictions on trade were removed, the inhabitants found security for their persons and property and consequently returned in great numbers to cultivate the fields from which they had been driven by their Burman masters,* the soil was very fertile, the port had been brought down from Mro-houng to the seacoast and was easy of access, and the numerous creeks enabled the cultivators to bring in the grain, and in consequence the trade of Akyab increased rapidly.

From October 1830 till April 1831, that is during the shipping season, one hundred and forty square-rigged vessels cleared out carrying cargoes valued at Rs. 73,780. In 1833 the number of such vessels had increased to one hundred and seventy-eight and the value of their cargoes to Rs. 93,810. In 1840 the number was seven hundred and nine and the tonnage 82,111 tons.

In 1845-46 the quantity of grain exported was 74,023 tons, valued at Rs. 1,256,543, and in 1853-54, just after the close of the second Burmese war, 85,999 tons valued at Rs. 3,051,272. The direct exports to Europe were small for in 1846 only 20 vessels loaded for the long sea voyage, carrying 6,481 tons, whilst 36,089 tons were taken to Madras, a good deal of it being re-shipped thence as Madras rice.

Before the cession of Arakan, Kyouk-hpyoo did a small trade. "Beyond an average of about three godoos per year to Calcutta "from Ramree leaving in November and carrying away ivory, "bees wax and buffalo horns there were no exports by sea. In "return for these exports there were imported from Bengal, betel-"nuts, Rungpur tobacco and some English piece-goods; a portion "of these were landed at Ramree and the remainder were taken "up the Irrawaddy to Amarapoora in the same godoos.

"From there was brought back cotton, cutch, sessamum oil, "glazed earthenware &c. This cotton and cutch was as a rule "exported to Bengal during the following season together with the "only exports from this district, *viz.*, those mentioned above."

After the cession the people began to cultivate more and the Government established stores for the salt made in the country and dealt with salt here as it does now with that made in India. In 1838-39, eighty-five vessels with an aggregate tonnage of 10,802 arrived, and eighty-eight with an aggregate tonnage of 10,802 left. In 1846-47 the number of arrivals was one hundred and ten and

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* In 1840 Lieutenant (now Sir Arthur) Phayre, in writing of the return of the Arakanese, recorded that those who came back told him that "in their exile the old men used to speak, with regret for the loss of the beauty of their country and the fertility of the land which returned a hundred-fold.

of departures also one hundred and ten. After that trade would seem, according to the returns, to have fallen off but this is explained by the fact that most of the ships that came at first were employed in carrying the salt to the Government golahs, or stores, in Chittagong.

The trade of Maulmain had to be developed. For many years, ships had ceased to visit Martaban and the English found only a small village where now there is a town of 54,333 inhabitants. The trade was at first almost entirely in teak. It was a free port and no statistics of imports and exports were kept, but it is clear from the timber revenue realized that vast quantities of teak were exported. In 1836 the revenue was Rs. 20,804, in 1846 Rs. 88,869 and in 1855-56 Rs. 206,359. Not only was timber exported but ship-building yards sprang up and one hundred and twenty-three vessels were launched between 1830 and 1855. During the fourth decade of the century the exportation of rice commenced, and in 1850 Europe took 18,058 bags.

Mergui and Tavoy did but little trade, and this principally with the Straits on the one hand and with Rangoon and Bassein on the other. The exports were fruits, rice, rattans, torches, dried fish, areca nuts, sessamum, sea slugs, edible birds'-nests and tin; whilst piece-goods, tobacco, cotton, earthenware, tea and sugar, were imported.

Thus when the second war broke out Arakan was doing a large trade in rice and Maulmain in timber.

After the annexation of Pegu the trade increased rapidly. The three provinces remained independent of each other and doubtless the impetus given to mercantile transactions in Rangoon and Bassein by the removal of obstructions and the development of the country had some effect on that of the sister provinces, but the trade there continued to increase.

Piece-goods, salt and various other articles poured in whilst rice rose to the first place and cutch, hides and horns, and petroleum appeared amongst the exports. The King of Burma had lost the whole of the seaboard and Rangoon and Bassein became almost the only outlets for the produce of Upper Burma and inlets for the supply of the demands of the whole valley of the Irrawaddy and the neighbouring provinces of China. For many years there had been a regular line of commerce between Yunan and Szechuen and Burma which will be more particularly dealt with when the inland trade is described.

In 1854 the sea customs department was established in Arakan under Act XXX. of 1854 and the dues were first levied in January 1855. The exports of grain in the previous year amounted to

91,650 maunds. The trade from that year till 1862-63, when Arakan was joined to Pegu, will be seen from the following table :—

Year.	Value in Rupees of		Grain exported, in tons to				Vessels cleared.			
							British.		Foreign.	
	Imports.	Exports.	Home *i.e.* Indian provincial and other Arakan ports.	Europe.	Foreign ports.	Total.	No.	Tonnage.	No.	Tonnage.
1854-55 ...	7,076,700	6,640,583	2,516	126,158	19,791	148,465	110	58,096	113	66,197
1855-56 ...	7,788,449	10,978,965	145	193,881	8,336	202,762	133	74,101	155	94,150
1856-57 ...	4,755,471	4,302,599	427	58,413	12,010	70,850	87	42,091	72	38,244
1857-58 ...	5,139,577	8,245,269	6,530	141,302	17,683	165,515	204	114,816	95	55,339
1858-59 ...	3,476,649	3,944,980	7,448	50,102	11,767	69,317	141	63,775	59	83,962
1859-60 ...	4,833,674	4,053,678	3,326	58,183	3,917	65,426	88	44,639	40	23,529
1860-61 ...	2,916,669	5,001,158	1,043	122,722	1,507	125,272	123	66,512	82	48,631
1861-62 ...	5,627,495	4,601,531	1,547	104,361	702	106,610	115	55,830	70	50,930

There was little or no direct import trade from Europe, the requirements being brought from Calcutta and Rangoon and consisting of piece-goods, crockery, iron and tin-ware, vegetable oils, canes, tobacco and betel-nuts. The exports consisted of rice in large quantities and of tobacco, cotton, hides, and horns in small quantities.

The export of timber from Maulmain did not fall off. The quantity carried away in each year was, in tons :—

1856-57 ..	.. 28,779	1859-60	.. 77,620
1857-58 ..	.. 42,326	1860-61	.. 60,218
1858-59 ..	.. 69,371	1861-62	.. 97,970

The export of rice during the same period was, in tons :—

1856-57 ..	.. 19,405	1859-60	.. 17,766
1857-58 ..	.. 24,714	1860-61	.. 11,284
1858-59 ..	.. 16,163	1861-62	.. 28,615

Raw cotton formed another item and the exports were, in hundredweights :—

1855-56 ..	.. 1,929	1858-59	.. 2,465
1856-57 ..	.. 5,194	1859-60	.. 2,348
1857-58 ..	.. 1,376	1860-61	.. 1,442
	1861-62	.. 1,523	

Besides these the principal exports were hides and horns, with small quantities of lead, copper, yellow orpiment and stick-lac.

The principal imports were piece-goods, cotton, silk and woollen, cotton twist, wines, beer and spirits, sugar and betel-nuts.

The following table gives the value of the imports and exports from 1855-56, when Maulmain ceased to be a free port, to 1861-62. The principal imports were treasure (to purchase teak) cotton and silk piece-goods and twist.

	1855-56.	1856-57.	1857-58.	1858-59.	1859-60.	1860-61.	1861-62.
Imports.	Rs.	Rs.	Rs.	Rs	Rs.	Rs.	Rs.
Merchandize ...	3,260,756	3,955,148	3,937,903	2,416,108	3,510,477	3,386,714	3,797,452
Treasure	322,262	1,081,600	1,458,975	3,089,602	2,420,118	1,921,627	4,439,035
Total .	3,583,018	5,036,748	5,396,878	5,505,710	5,030,595	5,362,341	8,236,487
Exports.							
Merchandize .	4,173,453	5,103,632	5,509,534	5,576,321	4,830,962	4,336,697	7,699,667
Treasure	217,464	217,128	276,675	197,538	135,469	127,019	113,313
Total	4,390,917	5,320,760	5,786,209	5,773,859	4,966,431	4,463,717	7,812,980
GRAND TOTAL ..	7,973,935	10,357,508	11,183,087	11,279,569	10 897,027	9,766,059	16,049,468

In 1862 the three provinces were united to form the province as it now exists and from that year onwards the figures shewing the

trade of all the ports were amalgamated into one set of returns The total value of the imports in that year was Rs. 26,300,227 and of the exports Rs. 26,017,088, or Rs. 52,470,315 in all. By 1878-79 the value had increased to Rs. 167,658,245 or had more than trebled; the details are given in the following table :—

Description of trade.			Merchandize.	Treasure.	Total.
			Rs.	Rs.	Rs.
Private	Foreign	Imports	29,429,942	367,083	29,797,025
		Exports	53,375,147	84,930	53,460,077
	Coasting	Imports	29,791,291	18,328,817	48,120,108
		Exports	23,016,123	8,396,640	31,412,763
	Total		135,612,503	27,177,470	162,789,973
Government	Foreign	Imports	482,850	*Nil.*	482,850
		Exports	495	*Nil.*	495
	Coasting	Imports	1,107,224	1,241,500	2,348,754
		Exports	191,403	1,844,800	2,036,203
	Total		1,781,972	3,086,300	4,868,272
	Grand Total		137,394,475	30,263,770	167,658,245

The figures given include Government transactions which consist in the import and export of treasure from and to India, in the supply of the requirements of the railway, telegraph, military and other departments, and in exports of teak timber for the Royal Admiralty and the Imperial arsenals, and the return of stores no longer required.

The private trade consists of "foreign" and "coasting". Under the first is included trade with foreign countries, that is those not under the Government of India, and under the second trade with India.

The private transactions in treasure with foreign countries are small whilst those with India are large. Immense sums are annually imported to supplement the amounts realized from merchandize and are used in payment for the produce of the country. These imports are, as a rule, made between January and April when the bulk of the rice is being exported. The exports consist of sums sent back after the season is over. An examination of the figures will shew that the balance left in the province in 1877-78 was Rs. 20,689,085. What eventually becomes of this money is a standing mystery.

The principal exports are rice, timber from Pegu, Upper Burma, Tenasserim and the Shan States, cotton principally from Upper Burma, cutch from Pegu and Upper Burma, hides and horns from the province generally and the neighbouring States, oils, both raw petroleum from Upper Burma and burning oils purified from petroleum in Rangoon, and jade (which all goes to China) from Upper Burma. The principal imports are cotton twist and yarn, cotton piece-goods, gunny bags which go out containing rice, machinery and mill-work, metals, coals for the steam rice-cleaning and timber-sawing mills at the ports, silk raw, (from China) and piece-goods, betel nuts (which are preferred to those grown in the country), sugar and tobacco.

The general nature of the trade in merchandize will be seen from the following tables :—

Exports.

Articles.	Denomination.	1877-78.	
		Quantity.	Value
			Rs.
Caoutchouc (raw)	Cwt.	2,349	160,332
Cotton (raw)	,,	118,300	2,253,830
Drugs and medicines	Value	—	22,491
Fruits and vegetables	,,	—	127,598
Grain and Pulse—			
Gram	Cwt.	53,347	211,329
Rice in the husk (paddy)	,,	2,147,787	5,108,407
Rice not in the husk	,,	12,630,492	41,841,649
Wheat	,,	14,964	76,020
Pulse	,,	3,11,073	1,136,569
Other sorts (excluding flour)	,,	471	1,790
Carried forward ..	—	—	50,940,015

Exports—(concluded).

Articles.	Denomination.	1877-78. Quantity.	1877-78. Value.
			Rs.
Brought forward ..	—	—	50,940 015
Gums and Resins—			
Cutch, and gambier	Cwt.	1,95,339	1,716,656
Lac (all kinds)	,,	5,955	84,220
Hides (raw)	Cwt. & No.	30,495 261,598	627,081
Horns	Cwt.	4,371	82,386
Ivory (unmanufactured)	Lbs.	1,6129	81,625
Jewelry (precious stones &c.)	Value	—	6,960
Metals—			
Copper	Cwt.	452	20,988
Lead	,,	1,286	28,821
Tin	,,	975	34,904
Oil (mineral)	Galls.	306,195	251,067
Spices	Lbs.	2,074,059	255,854
Stones (jade)	Cwt.	3,566	639,601
Tobacco	Lbs.	1,588,956	328,026
Wood—			
Teak	C. tons	159,219	10,455,171
Other timber	Tons	1,019	55,968
All other articles	Value	—	5,229,282
Total ..	—	—	70,838,625

Imports.

Articles.	Denomination.	1877-78. Quantity.	1877-78. Value.
			Rs.
Apparel (including haberdashery)	Value	—	882,214
Candles of all sorts	Lbs.	413,655	146,840
Canes and rattans	Cwt.	14,389	106,211
Coals	Tons	68,378	998,112
Cotton—			
Twist and yarn	Lbs.	5,949,056	5,138,579
Piece-goods (excluding handkerchiefs) ..	Yds.	37,487,279	6,980,460
Dyeing and colouring materials	Value	—	109,624
Earthenware and porcelain	,,	—	522,693
Glass (including beads, &c.)	,,	—	343,265
Carried forward ..	—	—	15,227,999

Imports—(concluded).

Articles.	Denomination.	1877-78. Quantity.	1877-78. Value.
			Rs.
Brought forward ..			15,227,999
Jute—			
Manufactures of—			
Gunny bags	No.	8,399,574	2,322,013
Leather, and manufactures of	Value	—	168,272
Liquors—			
Ale, beer, and porter	Galls.	186,797	459,469
Spirits	,,	142,106	931,780
Wines and liqueurs	,,	30,359	275,411
Other sorts	,,	104	1,081
Machinery and mill-work	Value	—	1,119,306
Metals—			
Brass	Cwt.	2,778	178,850
Copper	,,	5,866	304,657
Iron	,,	93,415	807,427
Steel	,,	2,211	25,309
Tin	,,	1,298	36,840
Zinc and spelter	,,	2,440	37,430
Oils	Galls.	828,161	1,273,542
Provisions	Value	—	2,092,490
Salt	Tons	37,058	848,053
Seeds	Cwt.	37,881	331,397
Silk—			
Silk (raw)	Lbs.	233,793	978,933
Piece-goods	Yds.	6,261,617	6,821,288
Spices (betel-nuts)	Lbs.	17,446,661	2,268,894
Sugar	Cwt.	81,413	1,050,781
Tobacco	Lbs.	15,550,119	2,610,907
Umbrellas	No.	576,046	270,084
Wool—			
Manufactures of—			
Piece-goods (excluding shawls)	Yds.	1,115,504	1,634,903
All other articles	Value	—	6,987,283
Total ..	—	—	49,064,398

Of the foreign import trade Rangoon took 94·4 per cent., while the balance was in a great measure received into that port and transhipped to others. The proportion of the coasting trade taken by Rangoon was 62·7 per cent. and of the total import trade 77 per cent.

The chief foreign countries which have a direct trade with British Burma are enumerated in the succeeding table. France, Germany, Belgium and Holland take also a large proportion of the rice which is exported to the Channel and other places for

orders and is entered against the United Kingdom, Gibraltar, Malta and Egypt.

Countries.	1877-78.		
	Imports.	Exports.	Total.
	Rs.	Rs.	Rs.
United Kingdom	17,747,656	37,789,338	55,536,994
Belgium	12	—	12
Denmark	—	442	442
France	1,678	70,287	71,965
Germany	168,094	213,058	381,152
Holland	867	—	867
Italy	198,615	—	198,615
Malta..	—	—	—
Norway	35,484	—	35,484
Spain	113	—	113
Cape of Good Hope	558	4,400	4,958
Egypt	—	155	155
Mauritius	10,043	106,451	116,494
Reunion (Bourbon)	—	—	—
South America	1,173	239,257	240.430
United States	—	—	—
Aden	110	—	110
Arabia	29,197	—	29,197
Ceylon..	27,946	809,062	837,008
China	—	329,838	329,838
Java	—	628	628
Siam	108,266	303,493	411,759
Straits Settlements	4,493,362	6,785,106	11,278,468
Other countries in Asia (Sumatra)	—	52,760	52,760
Australia	8,790	—	8,790
Total ..	22,831,964	46,704,275	69,536,239

The next tables give in detail the number and tonnage of the shipping engaged in the trade of the province in 1877-78.

Ports.	Description of vessels	SHIPPING ENGAGED IN COASTING TRADE.											
		Entered				Cleared				Total.			
		In ballast.		*With cargoes.*		*In ballast.*		*With cargoes*		*In ballast*		*With cargoes.*	
		No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons	No.	Tons.
Rangoon	Steam	55	55,806	226	152,381	4	2,159	280	204,274	59	57,965	506	356,655
	Sailing	77	74,424	101	27,397	33	4,263	212	58,083	110	78,687	403	35,480
Akyab	Steam	32	17,449	119	58,542	15	6,359	132	66,444	47	23,808	251	124,986
	Sailing	167	34,233	188	11,841	219	6,517	120	25,062	386	40,750	308	36,903
Bassein	Steam	7	5,931	26	8,041	—	—	26	8,041	7	5,931	52	16,082
	Sailing	43	27,491	10	1,901	2	910	29	5,404	45	28,401	39	7,305
Kyouk-hpyoo	Steam	16	7,354	45	18,229	27	11,234	34	14,349	43	18,588	79	32,578
	Sailing	6	806	4	607	2	106	9	1,272	8	912	13	1,879
Mergui	Steam	—	—	48	10,123	—	—	49	9,386	—	—	97	19,509
	Sailing	5	137	131	2,617	—	—	120	2,533	5	137	251	5,150
Maulmain	Steam	19	14,886	156	71,595	10	6,801	155	74,584	29	21,687	311	146,179
	Sailing	101	57,432	181	20,509	98	4,271	241	65,154	199	61,703	422	85,663
Tavoy	Steam	5	1,003	64	12,770	20	5,116	56	9,934	25	6,119	120	22,704
	Sailing	22	861	191	5,133	6	151	314	6,993	28	1,012	505	12,126
Total	Steam	134	102,429	684	331,681	76	31,669	732	387,012	210	134,098	1,416	718,693
	Sailing	421	195,384	896	70,005	360	16,218	1,045	164,501	781	211,602	1,941	234,506
Grand Total		555	297,813	1,580	401,686	436	47,887	1,777	551,513	991	345,700	3,357	953,199

Ports.	Description of vessels.	SHIPPING ENGAGED IN FOREIGN TRADE.											
		Entered				Cleared				Total.			
		In ballast.		*With cargoes.*		*In ballast.*		*With cargoes.*		*In ballast.*		*With cargoes.*	
		No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Rangoon ...	Steam	16	14,746	86	57,719	1	999	105	74,646	17	15,745	191	132,365
	Sailing	109	87,686	93	88,892	1	741	210	195,739	110	88,427	303	284,631
Akyab	Steam	6	6,546	—	—	—	—	10	9,734	6	6,546	10	9,734
	Sailing	50	34,426	2	1,226	—	—	60	42,575	50	34,426	62	43,801
Bassein ...	Steam	3	2,561	—	—	—	—	9	8,419	3	2,561	9	8,419
	Sailing	52	44,572	2	1,729	—	—	67	59,957	52	44,572	69	61,686
Kyouk-hpyoo ...	Steam	—	—	—	—	—	—	—	—	—	—	—	—
	Sailing	—	—	—	—	—	—	—	—	—	—	—	—
Mergui	Steam	—	—	22	5,915	—	—	24	6,352	—	—	46	12,267
	Sailing	1	40	6	460	—	—	11	597	1	40	17	1,057
Maulmain ...	Steam	3	2,538	41	24,860	3	1,191	48	30,926	6	3,729	89	55,786
	Sailing	49	36,233	10	3,293	—	—	69	49,694	49	36,233	79	52,987
Tavoy	Steam	16	4,903	10	2,320	15	4,318	10	2,485	31	9,221	20	4,805
	Sailing	30	2,212	33	3,336	—	—	64	5,586	30	2,212	97	8,922
Total ...	Steam	44	31,294	159	90,814	19	6,508	206	132,562	63	37,802	365	223,376
	Sailing	291	205,169	146	98,936	1	741	481	354,148	292	205,910	627	453,084
Grand Total ...	.....	335	236,463	305	189,750	20	7,249	687	486,710	355	243,712	992	676,460

Ports.	Description of vessels.	GRAND TOTAL.											
		Entered				Cleared				Total.			
		In ballast.		*With cargoes.*		*In ballast.*		*With cargoes.*		*In ballast.*		*With cargoes.*	
		No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Rangoon ...	Steam ...	71	70,552	312	210,[illegible]00	5	3,158	385	278,920	76	73,710	697	489,020
	Sailing ...	186	162,110	284	11[illegible],289	34	5,004	422	253,822	220	167,114	706	370,111
Akyab ...	Steam ...	38	23,995	119	58,542	15	6,359	142	76,178	53	30,354	261	134,720
	Sailing ...	217	68,659	190	13,067	219	6,517	180	67,637	436	75,176	370	80,704
Bassein ...	Steam ...	10	8,492	26	8,041	—	—	35	16,460	10	8,492	61	24,501
	Sailing ...	95	72,063	12	3,630	2	910	96	65,361	97	72,973	108	68,991
Kyouk-hpyoo ..	Steam ...	16	7,354	45	18,229	27	11,234	34	14,349	43	18,588	79	32,578
	Sailing ...	6	806	4	607	2	106	9	1,272	8	912	13	1,879
Mergui ...	Steam ...	...	—	70	16,038	—	—	73	15,738	—	—	143	31,776
	Sailing ...	6	177	137	3,077	—	—	131	3,130	6	177	268	6,207
Maulmain ...	Steam ...	22	17,424	197	96,455	13	7,992	203	105,510	35	25,416	400	201,965
	Sailing ...	150	93,665	191	23,802	98	4,271	310	114,848	248	97,936	501	138,650
Tavoy ...	Steam ...	21	5,906	74	15,090	35	9,434	66	12,419	56	15,340	140	27,509
	Sailing ...	52	3,073	224	8,469	6	151	378	12,579	58	3,224	602	21,048
Total ...	Steam ...	178	133,723	843	422,495	95	38,177	938	519,574	273	171,900	1,781	942,069
	Sailing ...	712	400,553	1,042	168,941	361	16,959	1,526	518,649	1,073	417,512	2,568	687,590
Grand Total ...	.....	890	534,276	1,885	591,436	456	55,136	2,464	1,038,223	1,346	589,412	4,349	1,629,659

Inland trade.

Thus far I have treated only of the sea-borne trade. For many centuries Burma had a flourishing trade with China, the route leaving the Irrawaddy at Bha-maw. Both the Dutch and the English opened factories at Bha-maw in the beginning of the 17th century where they were established by permission and with no treaty rights. After some years both nations were expelled, but the reason is not clear, and all the subsequent endeavours of the English, made at intervals, to be allowed to return to Upper Burma were unsuccessful.

The principal articles of export to China were cotton and salt and some of the minor were white areca nuts from Penang and Acheen, edible birds'-nests from Tenasserim, the wings of a species of king-fisher imported from India through Arakan, and jade-stone (*prase*). The imports were principally silk, gold leaf, sycee silver, tin, arsenic, quicksilver, zinc, cast iron pots and pans, vermillion, wax, honey, hams, tea, velvets, felt rugs, walnuts, chestnuts, pears and preserved fruits. A small quantity of Russian broadcloth used to find its way in by this route and Colonel Burney saw some broadcloth bearing the East India Company's stamp which must have been imported through Canton. The value of the trade has been variously estimated. The two principal articles were silk and cotton, and according to the information given to Mr. Crawford* the value of the two was about £309,000. According to Colonel Yule the value of the trade was :—

		Rs.
Exports	Cotton	2,250,000
	Miscellaneous	100,000
		2,350,000
Imports	Silk	1,200,000
	Miscellaneous	675,000
		1,875,000
	Gross value	4,225,000

The trade, which was principally in the hands of the Chinese, was not carried on all the year round but at annual fairs, caravans arriving at Ava from China in December. The principal fair was at Bha-maw. Those articles of export which were not of local manufacture or found in Burma came into Rangoon and Bassein by sea, or were carried across the hills from Arakan by the An and Ma-ee passes.

* Journal of an Embassy to the Court of Ava. London : 1834, Vol. ii., pp. 194, 195.

In the Burmese times the only article of export from Arakan into Burma was nga-pee or fish-paste which was bartered for cotton, the usual rate of exchange being two viss (7·30lbs.) of cotton for every viss of nga-pee: from twenty to fifty men started together from Arakan, each man taking with him the nga-pee which he intended to barter, and the cotton was brought back in the same way. After the first Burmese war the land trade considerably improved, indeed so much so that it competed seriously with that carried on by the merchants who imported British goods *viâ* Rangoon, which was then a Burman town, and these induced the Burman Government to impose a duty of ten per cent. *ad valorem* on all goods exported by this route, and the system changed. Other goods were soon added to nga-pee and cotton; cutch, beeswax, ivory, silk piece-goods, lacquered boxes and ponies came in and British piece-goods, woollens, muslins, cutlery, betel-nuts and tobacco went out. Even during the rains a brisk trade in betel-nuts was carried on. In 1830 it was roughly estimated that the export trade was worth Rs. 500,000 and the import Rs. 300,000, but this is probably too high.

An and Dha-let were "the emporia of trade, but more parti-
"cularly the former, and during the months when the Shan and
"Burmese traders are expected to arrive, boats laden with British
"goods and the various products of the province are seen making
"their way from Akyab, Kyouk-hpyoo and Ramree to these marts,
"where the cargoes are sold to the Shan and Burmese merchants.
"By the Khwa pass cattle are principally imported for sale into
"Arakan, but as the breadth of the range is at this point very tri-
"fling and far less lofty than the more northern portions of the
"chain, it presents great natural facilities for intercourse between
"the inhabitants occupying the opposite sides of the range. The
"towns and villages on the Bassein river are numerous and large
"and the people apparently so fully aware of the advantages of trade
"that they annually make voyages in search of it not only to
"Arakan but along the coast to Chittagong, Dacca and Calcutta."*

No frontier custom-houses were established in Tenasserim and the total value of the imports and exports was not registered, but the quantities of timber brought down were accurately known.

The overland trade here had never been hampered since 1826 and everything that could be done to foster it was done. Missions were sent to Zeng-mai and beyond and to the Shan in the north, and in consequence the trade increased considerably.

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* Pemberton's Report on the Eastern Frontier of British India. Calcutta: 1835, p. 167.

After the annexation of Pegu Burma was cut off entirely from the seaboard and became dependent on caravans from China and the Shan States and on importations through British territory. True to their policy the Burmese put every possible hindrance in the way of merchants and levied very high import and export duties as well as transit dues, and indeed the "*chokey*" system described by Father Sangermano is still in force. The principal trade routes between Pegu and Upper Burma are by the Irrawaddy and the Tsit-toung and custom houses were established at our frontier posts, Thayet-myo and Toung-ngoo, and duties were levied on imports and exports. Certain imports, *viz.*, animals, precious stones, bullion and coin, grain, cotton and wool were free; for spirituous liquors the charge was one rupee a gallon, whilst special rules were from time to time issued for teak; on all other goods a duty of ten per cent. *ad valorem* was levied. On the export of rice in the husk half an anna and on husked rice one anna a basket was charged, on salt four annas a maund (80 lbs.), and on betel-nuts, fish-paste, dried, smoked, salted and preserved fish and fish-roes ten per cent. *ad valorem*; all other goods were free.

A short time after the close of the second Burmese war a rebellion broke out among the Mussulmans in Yunan and the route through Bha-maw was closed to traffic. Notwithstanding this the increase in trade has been great. Deprived of the delta of the Irrawaddy and of Arakan, whence Upper Burma procured its salt and fish-paste and to a great extent its rice, the inhabitants now depend largely on British territory. These articles together with cotton piece-goods and twist and yarn went up whilst cotton, lac and cutch came down. The demand in China for jade-stone was as strong as ever, and as it could not be carried through Yunan it came down the Irrawaddy and went round by sea.

In 1862, by which time the trade had doubled, a commercial treaty was made with the King of Burma providing for an optional abolition of customs dues on both sides and reducing the duty on all dutiable goods landed in British Burma and declared for export to Upper Burma to one per cent. *ad valorem*, and on the 23rd June 1863 the English Government ceased to collect frontier dues, the Burmese Government making no alteration. In 1863-64 the gross value of the trade had risen to Rs. 11,289,338 and the export of grain had increased by one-third in quantity. In 1866-67 the gross value was Rs. 12,890,202; this was a decrease of Rs. 2,708,851 from that of the preceding year, when the gross value was Rs. 15,599,053, and was partly due to a change in the commencement of the financial year, whereby one month was lost; but even allowing for this the decrease was very great, amount-

ing to Rs. 920,613 at Thayet-myo alone. The main cause was a serious rebellion which broke out in Upper Burma and for some time paralysed trade. How far the Burmese Government was actuated by the loss in customs dues and a desire to foster trade in order to recoup the loss it is impossible to say but in 1867 it reduced the duty on imports from ten to five per cent. *ad valorem* and the duty on imports from six per cent. to five. Later on in the same year it bound itself by treaty to levy no more than these reduced rates for ten years, the British Government agreeing not to re-impose the frontier dues as long as the Burmese Government was content to adhere to the five per cent. rate.

The Burmese Government had all along insisted on monopolies and steadily refused to give these up entirely but reduced them to earth-oil, timber and precious stones.

The main items of export *viâ* Thayet-myo and Toung-ngoo are rice (husked and unhusked), piece-goods (silk, cotton and woollen), cotton twist and yarn, raw silk, salt, nga-pee or salted-fish and fish-paste, betel-nuts and crockery, and of import by the same routes are raw cotton, sessamum oil, silk and cotton piece-goods of country manufacture, timber, cutch, petroleum, jaggery or coarse sugar, stick-lac, hides, wet or pickled tea, jade, wheat, and dry vegetables such as beans and peas.

The following table shews the value, in rupees, of the imports and exports during each of the last six years :—

Year.	Imports			Exports			Grand Total.
	viâ Irrawaddy	*viâ* Tsit-toung.	Total.	*viâ* Irrawaddy	*viâ* Tsit-toung	Total.	
1873-74	10,874,620	2,047,170	12,921,790	12,416,790	559,660	12,976,450	25,898,240
1874-75	12,543,050	2,032,670	14,575,720	13,941,090	761 ,520	14,702,610	29,278,330
1875-76 ...	12,904,550	2,241,590	15,146,140	13,045,020	514,180	13,559,200	28,705,340
1876-77	13,162,310	2,298,800	15,461,110	14,117,170	515,250	14,632,420	30,093,530
1877-78	13,828,730	2,600,780	16,429,510	16,999,520	571,870	17,571,390	34,000,900
1878-79 ...	16,077,060	31,32,080	192,09,140	17,167,516	4,42,107	17,609,623	36,818,763

Since 1876-77 endeavours have been made to register the inland trade by land routes: these are by the An and Ma-ee passes into Arakan; the Hlaing-bhwai route from Zeng-mai, the Kawkariet route from Siam and the Mee-tan route from the southern Shan States into the Amherst district; the Dha-gweng, Kyouk-hgnyat, Kaw-loo-do and Lo-ma-tee routes from Zengmai and the Northern Shan States into the Salween hill tracts; the Met-ta, Poung-raik and A-mya routes from Siam into Tavoy; the Tenasserim route from Siam into Mergui; the land route from Kareng-nee into Toung-ngoo; and one or two land routes from Upper Burma into Thayet.

In the case of the two river highways, the Irrawaddy and the Tsit-toung, the figures are generally accurate, but those representing the amount of traffic to and fro over the various land routes leading into and from Upper Burma, Zeng-mai, Siam and the Shan States are the result of the very limited and doubtless imperfect supervision which can be exercised over traders by petty native officials stationed at a distance from anything but occasional European control.

The principal articles of import into Arakan are ponies and cattle, Chinese ware, woollen piece-goods, gums and resins, metals, oils, soap-stone, jaggery and pickled tea; and of export from that division, native drugs and medicines, brass, copper and iron ware, betel-nuts, nga-pee, silk piece-goods and specie. Into the Pegu division by the land routes across the frontier come cutch, raw cotton, cotton piece-goods, sessamum oil and some few other articles of minor importance, whilst rice, some silk piece-goods, small quantities of nga-pee and sundries go up. The imports into Tenasserim from Siam and Zeng-mai are chiefly ponies, cattle, elephants, metal ware and raw and manufactured silk, with some precious stones, stick-lac and sundries; the exports are specie, twist and yarn, piece-goods (cotton, silk and woollen), metal ware, salt and sundries. The value of the imports in 1877-78 was Rs. 907,040 and of the exports Rs. 618,260, making a total Rs. 1,525,300.

Throwing out of consideration the land traffic we see that between 1862-63 and 1877-78 the trade of the province rose in value from Rs. 61,624,147 to Rs. 190,850,108 or more than trebled. In the former year the river trade beyond the frontier was entirely in native boats, and the tonnage of the ships which cleared out of the sea-ports was 472,380: in the latter, besides about 148,600 tons of boat tonnage plying on the Irrawaddy and the Tsit-toung, the Irrawaddy Flotilla Company had thirteen steamers and twenty-nine flats aggregating 115,860 tons, and the tonnage of vessels that cleared out of the ports, in ballast and with cargoes, was 1,093,359.

In 1878-79 the value of the sea-borne trade conducted by private persons, which is the real trade of the province, increased by 6·60 per cent. over that of the previous year, and entirely at Rangoon, trade at the other ports have slightly fallen off. According to the latest returns the values of the imports and exports, including treasure, were Rs. 77,917,133 and Rs. 84,872,840 respectively; the tonnage of vessels which entered from and cleared for foreign ports was 381,130, and 525,636, and the tonnage of vessels employed in the coasting trade was 1,347,017.

CHAPTER XV.

ADMINISTRATIVE HISTORY.

MANY points connected with the administration of the country have unavoidably been dealt with in previous chapters and all that I now propose to attempt is to describe what we found and what we have more or less gradually introduced, in so far as these have not already been touched upon.

The Burmese everywhere brought with them their own form of government and seem never to have modified it according to the previously existing systems which they found. Each of the principal provinces was ruled by a Governor appointed by the Crown with full civil, judicial, military and fiscal powers, and as long as he remitted the full amount for the person to whom the revenues had been allotted he was responsible only to the central Government; he was aided by a body of subordinate officials which usually consisted of Myo-tsa-re or Writers, Na-khan-daw or "Receivers of royal orders" and Tsit-ke or Military Officers, literally "Chief or Superior in war". These formed the provincial council sitting daily in the court and making reports to the Governor. Besides these there were the Htoung-hmoo or Gaoler, the Ayat-goung or Heads of quarters in the larger towns, the Ta-ga-hmoo or Gate-keepers at the gates and other minor officials. The governorship was divided into townships in charge of each of which was an officer, generally but not always, called Myo-ook if he was appointed from time to time or Myo-thoogyee if he held office by hereditary right. The township was divided into circles each under a Taik-thoogyee and the circle into groups of villages each under a Rwa-thoogyee.

This arrangement, however, was not universal, nor were the the titles of the officials always the same. In Pegu the Governor of Rangoon had very extensive powers but could not interfere with any other Governor. Under him in addition to the usual staff were an Akhwon-won or Superintendant of the Revenue, an Akouk-won or Collector of Customs, a Re-won or Myit-tseen-won or High Sheriff of the Irrawaddy whose jurisdiction extended from the mouth of the river to Kyouk-ta-loon and who held the power of the sword not only on the river but sometimes on land, as for example in Mye-dai whenever that governorship was ruled by a Myo-thoogyee instead of by a Myo-won. Sometimes a Myo-ook was appointed under a Myo-thoogyee and the judicial authority

was placed in his hands. In Arakan the Taik-thoogyee were called Kywon-ook, "Heads of islands," or Khyoung-ook, "Heads of streams," according to the nature of the tract they ruled. In perhaps the majority of cases the Taik-thoogyee's office was hereditary. In Meng-doon no Taik-thoogyee came between the Myo-thoogyee and the village head men. In some places there were subordinate officials called Pai-neng or steersmen who headed the local levies of boats which their tracts had to furnish when required. The country now forming the Henzada and Tharrawaddy districts was parcelled out into small areas ruled by officials who, though not of high rank, communicated directly with the Government.

The sources whence the revenue was derived, the manner in which it was levied, and what was done with it generally has already been described in the preceding chapter. All heads of tracts—Myo-thoo-gyee, Taik-thoogyee and Rwa-thoogyee—exercised a limited judicial authority and were answerable for the preservation of the peace. The punishments inflicted were barbarous in the extreme and the treatment of prisoners most cruel. Torture was freely applied in criminal cases to the accused and to the witnesses, and the sentences varied from fines and a few blows with a cane to imprisonment, mutilation, perpetual slavery and death either sudden or by slow torture. If a criminal was made a slave his whole family became slaves also and their descendants for ever; they were allotted to pagodas and it was their duty to keep them clean; nothing could wipe out the taint and the children born of a freeman and of a pagoda slave were slaves. Death was usually by decapitation, sometimes by being thrown to wild animals or by being trodden to death by elephants,* sometimes by disembowelling and sometimes the criminal was tied to a stake on the bank of the Irrawaddy at low water and left to be drowned by the in-coming tide. Punishment stakes were erected all along the river on sandbanks or on the top of the bank: these consisted of three strong bamboos firmly planted upright in the ground at about three feet apart; lashed to these were three horizontal bars, and two cross-bars in the shape of a St. Andrew's cross. Sometimes the criminal was tied on to one of these and disembowelled, sometimes put to death and lashed up afterwards, in both cases the body being left till it was eaten by vultures and the bones fell to pieces: impaling was not unknown.† Those condemned to imprisonment suffered terribly; their feet were tied to a long pole which at night was

* As in the case of the wife of King Hpa-gyee-daw who was put to death by King Koon-boung Meng (Tharrawaddy) in 1840.

† Philip de Brito y Nicote and two others were impaled by Maha-dhamma-raza of Ava in the beginning of the 17th century and at about the same time a nephew of the Portuguese adventurer, Sebastian Gonzales, by the King of Arakan.

often raised so that the unfortunate prisoners rested with their shoulders only on the ground, or they were kept for weeks and months in the stocks. Mr. Gouger, who underwent several months' imprisonment, says of the bamboo that "it was passed between "the legs of each individual, and when it had threaded our num-"ber, seven in all, a man at each side hoisted it up by the blocks "to a height which allowed our shoulders to rest on the ground "while our feet depended from the iron rings of our fetters." To add to the torture mosquitoes were often numerous and their stings on the bare feet intolerable. Entire or partial exemption from punishment was nearly always obtainable by bribing the Magistrates and alleviation from the worst horrors of the prison by bribing the gaolers.

Arakan was divided by the Burmese into four governorships with the head-quarters at Mrohoung, An, Ramree and Sandoway: these were formed by the English into three districts, Akyab with the head-quarters transferred from Mrohoung to Akyab, then a fishing village, Ramree and Sandoway and each placed under a district officer, all under the control of one special and two local Commissioners. The military head-quarters were at Sandoway with a detachment at Kyouk-hpyoo and a local battalion and a Mugh Levy were raised. Each district was divided into circles and several of the Thoogyee put forward claims as hereditary holders of appointments and all more or less desired to be looked upon as Zamindars. At first their claims were admitted, their circles were treated as their estates, and each was required to keep an agent resident at the head-quarters of the district. They were not all considered as holding estates for somewhat later tenders were called for from those who wished to be Thóogyee. Each applicant had to state the extent to which he would tax the people, the amount he would pay to Government and the balance that he would retain as the cost of collection and the value of his own time and trouble, and in 1826 a settlement was made for three years with the different Thoogyee. The island of Cheduba was at first farmed out to two Thoogyee but in 1828 an arrangement was made with one of them for the entire island for Rs. 12,000 a year with a guarantee that if he punctually paid up his instalments that amount of assessment should remain fixed for several years. The plan was soon found to be objectionable and serious doubts arose as to the claims of those who wished to be considered hereditary holders of office. In October 1828 the Government of India pointed out that it was an object of paramount importance to fix the amount to be collected by the Thoogyee so as to check all undefined and unauthorized collections. Changes amongst the Thoogyee had been made by the local

officials, and many of these appear to have originated in private arrangements between the parties the validity of which, until confirmed, the Government declined to admit. The Government added, "the system still partakes too much of the character given "to it under the unhappy introduction of the zamindari tenure."

About the same time the officer in charge of Akyab, whilst retaining his office, was made Superintendant of Arakan generally and subordinate to the Commissioner of Chittagong, and in 1829 the latter officer reviewed the whole system of administration. He remarked that the Thoogyee possessed no claim to office on the grounds of hereditary right or title, and that the mere fact of having in former times exercised control over an extended tract was no reason why the area of his charge should not be divided and sub-divided.

Under the Thoogyee were Rwa-goung or heads of villages who aided in the collection of the revenue and were to a certain extent police officers. Besides these there were regular police-stations at Akyab, Mrohoung, Meng-bra, Anouk-ngay, Ma-yoo, Dhalet, An, Cheduba, Kyouk-hpyoo, Ramree, Tsa-goo, Baboo-toung, Toung-goop, Sandoway, Khwa and Pe-kywon.

In 1829 the police arrangements were revised, the police-stations reduced in number, the provincial battalion disbanded, another company added to the Mugh Levy, a force composed of Arakanese, and a force of burkandazes was raised to perform the duties up till then entrusted to the provincial battalion. At about the same the military head-quarters were transferred to Kyouk-hpyoo and a small detachment left at Sandoway, whilst the head-quarters of the naval or marine establishment, which consisted of gun-boats, accommodation-boats and troop and elephant flats, were transferred hither from Tsa-goo and placed under the orders of the officer commanding in Arakan.

In 1839 the marine establishment was made over to the civil authorities and placed under an officer whose official designation was "Marine Assistant Commissioner" with his head-quarters at Kyouk-hpyoo.

In 1833 seventeen circles were taken from Akyab, Ramree and Sandoway and formed into a new district with the head-quarters at An. The place was found to be very feverish and the head-quarters were brought down to Kyouk-hpyoo. In 1838 eleven circles were added from Ramree to Kyouk-hpyoo.

For several years the country was in a more or less disturbed state, and within two years a plot to restore an Arakanese dynasty was commenced. The leaders were three men named Oung-gyaw-rhee, a brother-in-law of Khyeng-byan whose conduct had to a great

extent led to the Anglo-Burmese war,* Oung-gyaw-tsan, his nephew, both of whom had aided the British army and had received appointments from the British Government, and Shwe-pan, also a British official. In 1827 attempts were made to tamper with the local battalion, but this was discovered, Oung-gyaw-rhee and Oung-gyaw-tsan were dismissed and the latter was sentenced to seven years' rigorous imprisonment for seriously wounding a police daroga. In 1829 Nga Tsa-oo, the Thoogyee of Alay-gyo in Sandoway, raised a rebellion which was soon suppressed, Nga Tsa-oo driven out and his nephew appointed in his place. A few months later Nga Tsa-oo called upon his nephew to resign and on the latter refusing attacked and seized his village; in 1830 he was at last forced to retreat across the Roma to Kanoung, then in Burmese territory. In 1831 a Hpoongyee of Kyien-ta-lee gave out that he was a Meng-loung or embryo king, and gave much trouble before he was overcome. In 1836 the rebellion which had been so long smouldering in Akyab came to a head; the instigators believed, or pretended to believe, that the British would retire and accept an annual tribute in lieu of full occupation. Energetic measures were taken and the rebels were dispersed before they had time to gain any advantage or to do more than commit a few dacoities and robberies.

The various officers and their duties in 1842 have been described by Sir Arthur (then Lieutenant) Phayre. Each circle was placed under a Kywon-ook or Khyoung-ook, the title depending upon the locality. His duties were to collect the revenue, to preserve order in his circle and to assist the police in the apprehension of criminals; through him were made all statistical enquiries and to him were referred many disputes concerning land; he was then paid fifteen per cent. on his collections. The office was not hereditary but the son of any man who had rendered essential service generally succeeded on his father's demise. In each circle there were from three to fifteen or more villages or groups of hamlets in charge of which was a Rwa-goung; this official was elected by the people themselves subject to the veto of the district officer; his duties were to collect the revenue of his charge and to deliver it to the Thoogyee; he was paid by a percentage of four per cent. on his collections provided that he had thirty houses under him, no Goung was appointed for a smaller number unless the people wished it in which case they paid him themselves. Under the orders of the Rwa-goung was the Rwa-tsa-re or Writer, usually the son or some relation of the Rwa-goung, who had to prepare the village register shewing the names of each

* See page 522.

householder with the amount due from him under each head; he received two per cent. on the village collections.

Regular police-stations were kept up, but the circle and village officers were held responsible for the preservation of order and the seizure of criminals.

In each district there was a Myo-thoogyee who, under the orders of the district officer, supervised the collection of the revenue and the conduct of the Thoogyee as far as regarded their revenue duties.

The district officers were now styled "Senior Assistants".

In 1852 Ramree and An were united, with the head-quarters at Kyouk-hpyoo. During the second Burmese war the garrison was strengthened but in 1855 the regular troops were withdrawn and the marine establishment was transferred to Akyab.

When Arakan was ceded it extended southwards as far as Cape Negrais. After the annexation of Pegu the seaboard as far north as the Kyien-ta-lee was joined to Bassein and so remained till 1864.

The system of administration in Tenasserim was somewhat different. Arakan had been joined to Bengal, of which the Governor-General was also Governor; Tenasserim was placed directly under the Governor-General in that capacity and not as Governor of Bengal.

The country was divided into three districts—Amherst, Tavoy and Mergui—with the head-quarters of the Commissioner at Tavoy, subsequently moved up to Maulmain, but considerable power remained in the hands of the military authorities at Maulmain. Each district was sub-divided into divisions or townships, and these again into circles. The revenue system which the English introduced has already been described. The officers in charge of districts were styled Assistants to the Commissioner and supervised the whole administration of their districts. The divisions or townships were placed under native officials styled Goung-gyoop (correctly Khoung-khyoop or "Chief of chiefs") with limited civil and criminal powers. The Thoogyee were generally selected by the householders who, however, had the option of paying in their revenue direct. The Thoogyee had the superintendence of the police and, together with some of the villagers acting as assessors, were vested with powers in civil cases in which the amount claimed was small and in settling petty disputes. Subordinate to the Thoogyee and in charge of villages were Kye-dan-gyee, elected by the people and receiving no salary.

Military detachments were maintained in Tavoy and Mergui the head-quarters of the troops being at Maulmain. The naval force consisted of two gun-boats, two row-boats, a small accommo-

dation-boat and the steamer "Diana" at Maulmain, with a gun-boat at Tavoy and another at Mergui.

Immigrants from Pegu soon began to arrive in numbers, each part under its own leader; these leaders continued to exercise authority irrespective of old boundaries and were naturally acknowledged as Thoogyee of the villages which they established and as the collectors of the taxes due by their followers, but it frequently happened that some of the followers cultivated lands at a distance from the villages in which they lived and amongst the lands of inhabitants of another village, yet they still paid the land revenue through their own leader, and the divisions of the country thus became to some extent tribal instead of territorial. This was no doubt convenient at the time, but it became highly inconvenient and steps were taken to bring the fiscal arrangements back again into their old channel.

In the meanwhile the country had not been altogether peaceable. On the one hand the Burmese made inroad after inroad across the Salween into our territory, and on the other rebellions broke out in the south. At Tavoy there was a set of persons dissatisfied with the establishment of our authority and with the loss of their power and influence which that entailed; several of them were seized in 1825 by Colonel Wolfe and in 1826 a second conspiracy was detected. Unfortunately many of those arrested and sent to Rangoon to Sir Archibald Campbell were released and returned to their old haunts. Shortly afterwards a third conspiracy was formed at Tavoy; the gaol and magazine were attacked and the former captured and the garrison retired from the town to the wharf but eventually retook the place and quiet was restored. In the meanwhile an insurrection had broken out at Mergui and the British garrison, either panic-struck or misled by false rumours, withdrew, leaving the town in the hands of the rebels. The intelligence which reached Mergui of the defeat of the conspirators at Tavoy rendered the disaffected leaders undecided in their resolutions and some withdrew and sent out boats in search of the British; reinforcements were sent down from Tavoy and Mergui was re-occupied. The leader at Mergui was a Mahomedan native of India, a personal servant of the officer commanding, who spread reports of the destruction of the force at Maulmain by an army of five thousand Burmese which was marching south and thus succeeded in inducing his master to abandon the town to the rebels with whom he, the Mahomedan, remained. The inroads from Burma were checked by the burning of Martaban by a detachment sent over from Maulmain and in order to prevent the repetition of the incursions of the Siamese in the south a detachment of two

officers and one hundred men was sent to the old town of Tenasserim, another of one officer and fifty men to a strong position about twelve miles south-east of Mergui near where the Tenasserim commences to branch out into its several mouths, a third of one hundred men to a place about forty miles above Tavoy, and a fourth of fifty men to a spot half way between the third detachment and Tavoy: these measures restored confidence and the inhabitants gradually gave up the habit of crowding into the principal towns and spread themselves more over the interior.

When Tharrawaddy's successful rebellion broke out in Upper Burma* a Talaing corps was formed in Tenasserim which in time was brought into a fair order and at first was very popular with the people. But this feeling soon wore away and, actuated partly by a dislike to the restraints of military discipline, partly by a fear of being sent on foreign service to India, and partly by an absurd story circulated among the men that unsupported they were intended to do all the fighting against the Burmese in case of an invasion, those who might have done good service ceased to come forward for enlistment and eventually the corps was disbanded.

The importance of the forests in Tenasserim had long been recognized and very soon after the British occupation the Government framed rules for working them. These rules were varied from time to time sometimes advantageously and sometimes very disadvantageously. The history of forest conservancy has already been given in Chapter III. page 113 *et seq.*

Matters remained very much in the same state for many years; population and revenue increased, the revenues were levied with as light a hand as possible, the system was continually being improved, crime was kept down by the Thoogyee and Goung, and the district officers and subordinate native judicial officers administered justice, perhaps not with such accuracy of form or such intimate acquaintance with the principles of English law as is now required but on the whole substantial and satisfactory to the people.

On the outbreak of the second Anglo-Burmese war fears were at first entertained for Maulmain and the garrison was strengthened. No attack of any importance took place and the capture of Martaban and the advance up the Irrawaddy and Tsit-toung valleys relieved the Government from all apprehensions. One of the results of the war was the annexation of the whole country from the Salween on the east to the Arakan mountains on the west as far north as 19° 30′ N. The tract lying between the Salween and the Tsit-toung

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* See page 348 *et seq.*

up to the Rouk-thwa-wa west of the Poung-loung mountains and to the frontier on the east was formed into a province and called Martaban and placed under the Commissioner of Tenasserim whose title then became "Commissioner of the Tenasserim and Martaban Provinces".

On the annexation of Pegu in 1853 the various jurisdictions under the Burmese Government except Martaban were formed into five districts and placed under a Commissioner directly subordinate to the Governor-General with his head-quarters at Rangoon. These districts were.—Prome in the valley of the Irrawaddy, with the head-quarters at Prome, extending between the Arakan and Pegu mountains from the northern frontier as far south as Akouk-toung on the west bank of the Irrawaddy and a little further south on the east bank; Tha-ra-waw (Sarawa) occupying the tract south of Prome on both banks of the Irrawaddy, as far south as the Thoon-tshay stream east of the Irrawaddy and the southern limit of Donabyoo on the west; Bassein in the west of the delta below Tha-ra-waw (Sarawa) to the seacoast with the head-quarters at Bassein; Rangoon, with the head-quarters at Rangoon, on the east of Bassein as far east as the Tsit-toung and reaching up northwards on the east of the Pegu Roma to Toung-ngoo, which occupied the northern portion of so much of the valley of the Tsit-toung as Lord Dalhousie had annexed. Each district was divided into townships placed under a native Magistrate called a "Myo-ook", and each township was divided into circles under Thoogyee who had police and revenue powers; to aid the Thoogyee were Goung and Kye-dan-gyee or petty village heads; the former were rural policemen who had also to assist the Thoogyee in their revenue duties, and the latter revenue officers who had to assist in police duties. The hereditary tenure of circles had long been practised in Pegu and was acknowledged by us, but this hereditary tenure never applied to Rwa-thoogyee or heads of villages but only to some Taik-thoogyee or heads of what we have called circles. Advantage was taken of our readiness to admit hereditary tenure and many Rwa-thoogyee got themselves registered as Taik or circle Thoogyee. These circles, more especially in the north, were so small that the revenue derived from them was insufficient to furnish a sufficient percentage for a Thoogyee's support and gradually, as Thoogyee have resigned or been dismissed, circles have been joined together, but always retained as distinct in the rolls, so that one Thoogyee has in some cases charge of as many as ten or more so-called circles.

All the officials, except the Thoogyee and the Kye-dan-gyee, received regular monthly salaries; the Thoogyee were (and are)

paid by a percentage on their collections of revenue and the Kye-dan-gyee were paid no salary but were exempted from the payment of capitation tax.

The first step taken was to revise the whole fiscal system, the irregular and uncertain imposts were done away with, transit dues, brokerage charges and other similar sources of revenue were abolished, and in lieu of all other demands the following were imposed: a land revenue derived from the area cultivated by each person in the plains, the rate varying according to the soil the means of communication and the proximity of markets, but being once fixed unchangeable except after minute enquiry and report; a tax on hill gardens, which could not be measured, at so much per '*ya*'; a capitation tax due by all except certain specially excepted classes and at a fixed rate; a duty on the manufacture of salt at so much per pot or per cauldron; a tax on the collection of forest produce, such as honey, dammer, &c.; and a fee on the use of fishing traps and nets varying according to the trap or net used: these were the only forms of direct taxation. The lake and pond fisheries were sold by auction annually. Licenses to establish shops for the sale of intoxicating liquors and drugs were sold by auction, the purchasers of the latter being bound to obtain their opium from the State, and the localities of the shops being fixed beforehand. A duty on all teak timber, customs and the use of stamps for the payment of fees in judicial cases formed the principal items of indirect taxation.

At first the country was very disturbed. The Burman troops had been driven out but numerous centres of disaffection remained and many individuals were left behind who were willing enough to join any leader who promised them plunder. Especially was this so at the head of the delta, that is in Tha-ra-waw and in the northern parts of Bassein and Rangoon. There were several risings in Bassein which were effectually put down by a Kareng Levy raised by the civil officers aided by a small party of seamen from the ships, but two leaders, named Nga Myat Htoon and Goung-gyee, gave more trouble. Nga Myat Htoon, who was the hereditary Thoogyee of a small circle and who had more than once resisted the Burmese Government, taking advantage of the disorganization of the country, the immediate result of war, collected a band of bad characters and plundered in every direction, directing his attacks more particularly against those who had in any way assisted the English, even by providing firewood for the steamers. A force was sent against him from Rangoon under Captain Hewitt, I.N., which drove him out of Donabyoo but he returned to the neighbourhood as soon as Captain Hewitt withdrew and early in 1853

he defeated a party under Captain Loch, R.N. and killed its leader. Sir John Cheape then moved down from Prome and attacked him at a place somewhat to the south of Donabyoo whilst Captain Fytche moved up against him from Bassein. The Burmans were completely defeated and Myat Htoon escaped and never returned. Tha-ra-waw was so disturbed that it was divided into two districts, Henzada on the west and Tharrawaddy on the east of the Irrawaddy. In January 1854 fresh disturbances broke out: two men, named Nga Shwe Too and Nga Kyaw-zan-hla, came down from Ava and issued a proclamation to the effect that they had been commissioned by the Heir-apparent—the brother of the King who had just been dethroned and of the King who had just been proclaimed (the late Meng-doon-meng) and who was himself murdered in 1867 during the rebellion of his nephews, the Myeng-goon and Myeng-goon-daing princes—and had been appointed the one Governor of Bassein and the other Commander-in-chief. Aided by a Booddhist monk and by Nga Tha Oo, who had formerly been Pai-neng of Re-gyee and was now on parole, they collected a large body of men and suddenly seized Doung-gyee, Re-gyee, and Nga-thaing-khyoung and advanced on Bassein. They were met by a small force under Bt.-Major Fytche (who had been promoted for his services) and driven back and Re-gyee was retaken. That night Nga Shwe Too moved out of Nga-thaing-khyoung and surrounded Re-gyee but next morning he was completely defeated. In the meanwhile the Myo-ook of Le-myet-hna had unsuccessfully attacked the rebels in Doung-gyee and after the defeat of Shwe Too Major Fytche marched against and dispersed them making the commander prisoner. Whilst Henzada and Bassein were being cleared Goung-gyee was being closely pursued by Captain (now Colonel) Brown in Tharrawaddy. During the Burmese rule he had been Myo-ook of Ta-pwon and during the war had refused to furnish a contingent for the Burman army at Prome but the advance of the British was so rapid that the Burman Generals had no opportunity of reducing him to obedience. He declined to join the English and gathering a large number of followers he wandered about the jungles for two years murdering and plundering, killing amongst others, one after the other, two men who had been appointed to the post he once held. For the better protection of the country a local corps, called the "Pegu Light Infantry", about five hundred and fifty strong, was raised and its head-quarters placed at Myanoung, and a local police corps of about the same strength was formed in Tharrawaddy, and Deputy Commissioners were authorized to carry out any sentence of death which they might pass on persons taken in open and armed insurrection, an authority subsequently withdrawn as the country settled down.

Goung-gyee was hotly pursued and at last escaped into Upper Burma where he died many years afterwards.

Detachments of regular troops were stationed at various places along the northern frontier but as these proved unhealthy for the Madras sepoys they were withdrawn, their places being taken by parties of the Pegu Light Infantry.

In 1857 a rebellion broke out in Martaban (now called Shwe-gyeng) and almost at the same time another in Bassein. A Kareng, who styled himself Meng-loung or an embroyo king taking advantage of a Kareng prediction that a man of that race was to drive out the foreigners and establish a new dynasty in Pegu, entered into communication with his race-fellows in Bassein and collecting some 1,500 men overran the Rwon-za-leng, now called the Salween Hill Tracts, and descending into the plains took possession of several villages, the inhabitants escaping into Shwe-gyeng. On the approach of a British force he escaped into Zeng-mai but soon re-appeared. A local force was raised by the Deputy Commissioner who, aided by the Deputy Commissioner of Amherst who moved up from the south, completely cleared the country, Meng-loung escaping into Kareng-nee whence he never returned. Whilst Meng-loung was up in arms an ex-Thoogyee of Keng-rwa, a village a few miles east of Kyaik-hto, a Shan named Nga Thee-la, collected a band and having murdered the Goung-gyoop or Myo-ook of Kyaik-hto declared in favour of Meng-loung. He attacked Kyaik-hto but was killed during the fight and his followers dispersed. The outbreak in Bassein was headed by an emissary of Meng-loung who occupied Myoung-mya, but retreated towards La-bwot-koo-la where he was overtaken and his band dispersed. It re-assembled in Wa-ka-may where it was attacked and finally defeated, forty of the number being made prisoners. The leader escaped but was eventually captured.

In 1861 Henzada and Tharrawaddy were again united to form one district and the head-quarters were moved north to Myanoung. In that year the present police force was organized in Pegu, and in 1862 in Tenasserim and in Arakan, the Pegu Light Infantry, the Pegu Sapper Battalion and the Arakan local corps being disbanded and the then existing police force abolished.

In 1861-62 a Commission was appointed to consider the administration of the four provinces, Arakan, Pegu and Tenasserim and Martaban, and the results were the union of the four into the existing province and considerable reductions in the garrison and administrative staff.

In 1864 the tract on the west of the Arakan mountains lying between the Khwa and the Kyien-ta-lee was restored to

Sandoway from Bassein, and in the same year Bhaw-nee, a narrow strip of forest-clad mountainous country on the eastern slopes of the Pegu Roma, was made over to Toung-ngoo from Rangoon.

In 1866 Bhaw-nee was transferred to Martaban, and the townships of Hpa-gat, Tha-htoon and Martaban were taken from Martaban and given to Amherst and the name of the district changed from Martaban to Shwe-gyeng. In the same year the wild and mountainous country in the north of Akyab was placed under a specially selected officer and called the Arakan Hill Tracts. Very soon after we occupied Arakan we had established some kind of authority in these wild regions. A Khyoung-ook or Head of a river district or tract was appointed in 1825, and even in those days a tax of Rs. 3 per house was imposed upon the hill men, but large clans who lived in the interior paid nothing. But in truth the whole of the tract was very much left to itself and raids, which were only occasionally punished, were continually taking place into Chittagong, into the plains of Akyab, and on different mountain tribes. In 1838 a force of eighty men aided by the people living along the Koo-la-dan was sent to chastise the Leng-gai and destroyed one of their villages, consisting of over 300 houses, killing two men and taking three women captive; about the same time Captain (now Sir A. P.) Phayre and Lieutenant (now Lieutenant-General) Fytche, who were the first European officers to visit these hills, headed a party sent to attack the Wa-lien. Some time later the Anoo committed an extensive raid on Toung-meng Oung-mai's village for which Captains Hopkinson and Latter punished them severely. Traders were comparatively safe and the forays were due to the frequent feuds between the clans. These feuds appear to have originated in each case from one or more of three distinct grounds *viz.*, *ata* or claim for black mail, *asa* or claim for compensation in cases of damage, and head-money or claim for the price of the body of some deceased member of the community. *Ata* corresponds in some measure to the Mahratta *chout* and is in fact a rude impost which is reluctantly paid by a weak clan to a strong one. "Sometimes it was refused or evaded and then followed a raid "with its usual accompaniments of murder, outrage and the capture "of prisoners to be sold into slavery. *Asa* or claim for compensation "appears to have been chiefly connected with claims of runaway "slaves which a tribe was unable or unwilling to surrender. The "demand for the price of a head was perhaps the most frequent cause "of raid. In the event of the death of a hill man under exceptional "circumstances it was the custom to charge the casualty upon some "other tribe or clan and then to fix an arbitrary value upon the life "which had been lost. The charge was often brought forward with-

"out any real ground and simply as an excuse for extortion or as a "cloak for raiding and plundering a village." Naturally one raid led to others when the raided clan considered itself able to recapture those who had been carried off or to exact a forcible payment in human flesh for those of its members who had been killed in defending their houses.

This state of affairs, in which raids were of continual occurrence and were punished by raids more scientifically conducted by the British authorities, lasted till about 1866 when, as stated above, an European officer was placed in charge of the tract but to some extent under the Deputy Commissioner of Akyab.

Every district had been growing rapidly in population and wealth and it was found that the Deputy Commissioner of Prome whilst occupied with important administrative duties at and near Prome could not pay sufficient attention to frontier politics or keep strict watch over the frontier free-booters who made constant inroads into our territory from Upper Burma and in 1870 on both political and fiscal grounds the northern portion of Prome was formed into an independent district called Thayet, with its head-quarters at Thayet-myo.

In 1871-72 changes were made in Northern Arakan. A conventional line was drawn between the territory under our direct administration and that over which immediate and direct control was not thought advisable; the former was made into a separate district called the Arakan Hill Tracts district, and the officer in charge was given an Assistant Superintendent of Police to aid him (a subordinate native official had been appointed in 1868) and the police was greatly strengthened and formed into a separate force. A code of simple rules was drawn up for the administration of justice and the Superintendant strove to cultivate and maintain friendly relations with the chiefs beyond the line of demarcation, influencing them as far as he could but not endeavouring to coerce or interfere with them or doing anything to make the British Government responsible for their protection from other and still more inaccessible tribes. Stockaded posts were established at Paluk-wa, Da-lek-mai and Le-mro and communication opened between them. These measures had a most beneficial effect and fewer raids were attempted; in one the marauders were overtaken and punished and in the only two others in 1871-72 the police received timely information and forced the war party to retreat before it had done any mischief.

In 1872 the chief of the Koon, a tribe living beyond our administrative border and formerly the most troublesome in our neighbourhood, had a friendly interview with the Assistant Super-

intendent of Police and promised to abstain from raiding expeditions and from harbouring outlaws from British territory, a promise which he has kept. During the same year the officer in charge visited Chittagong and it was then suggested that two more police posts should be established extending northwards from those already in existence, but an exploration of the proposed line shewed it to be one of great difficulty. In 1874-75 the Shandoo, long known for their marauding propensities, deputed no less than six missions representing four clans in order to make arrangements for living at peace.

In 1875 two new laws, technically known as regulations (because made by the Governor-General in Council and not passed by the Legislative Council, but which have the full force of law, the Secretary of State for India in Council having declared the provisions of 33 Vic., Cap. III., section 1. to be applicable to the Hill Tracts district), came into operation, one called "The Arakan Hills Civil Justice Regulation 1874"* regulated the civil courts and provided a very simple procedure suited to the nature of the country and the character of the tribes inhabiting it, and the other, called "The Arakan Hill District Laws Regulation 1874," deals more specially with the revenue and amongst other things lays down the rate to be levied on measured lands in the plains and on toungya or hill gardens and abolishing the capitation tax substitutes the levy of a tribute of one rupee for each family from all tribes and villages which had, up to its becoming law, paid tribute or capitation tax. In dealing with criminal cases the officers are guided by the Indian Penal Code and the Criminal Procedure Code. What has been done in this part of the country may be summed up in the words of the Deputy Commissioner:—"We found numerous tribes "of hill people, acknowledging no authority, constantly raiding "amongst themselves and on their neighbours in the plains, tak-"ing or being made slaves. We have introduced law and order "within certain defined limits and that chiefly by the encourage-"ment given to trade and the security to life and property afforded "by our police. Trade in tobacco, cotton and other hill products is "steadily increasing year by year. Most of the hill tribes are "placing themselves under our protection, and in the whole of the "district there is not a person detained by force as a captive. The "tribes that still live beyond our frontier are in friendly relations "with us and are gradually acquiring the wish to be admitted to "our protection."

* Doubts arose as to whether the Deputy Commissioner of the Hills district could, under this regulation, try civil suits originally instituted in his own court; these doubts were set at rest by the Arakan Hills Civil Justice Amendment Regulation 1876.

In 1871-72 several circles of the Meng-bra township of Akyab were joined to others of the Kyouk-hpyoo district and formed into the Mye-boon township of Kyouk-hpyoo, and the Rwon-za-leng sub-division of the Shwe-gyeng district was separated from it and made into an independent jurisdiction and called the Salween Hill Tracts district, whilst the police force was considerably strengthened. After the final defeat of Meng-loung, alluded to above, the country had remained quiet for several years but in 1864 disturbances recommenced: these were largely due to quarrels between the chiefs of Zeng-mai on the east and Kareng-nee on the north, each of whom claimed some valuable forest tracts and sold the right to extract timber to different foresters; each supported his own man, or rather aided his own man in supporting himself, and the consequence was that armed bands sprang up which soon carried their ravages across the Salween into British territory. The whole country was gradually becoming disorganized and the chiefs were losing all power and authority. So bad was the state of affairs that it was possible for an European, on the ground of the grant of a certain forest, to proceed eastwards into foreign territory with a strong body of men armed with rifles, and even carrying with him cannon, and to endeavour to hold his own against all comers; he succumbed to no use of force by the native ruler in whose country he was but to a process issued from the Court of the Recorder of Maulmain and to a judgment of that court. In 1871 Captain Lowndes was sent on a mission to Zeng-mai, but he failed in getting any better protection for our foresters; the chief was friendly and appeared to be arriving at some sort of an understanding with the Chief of Eastern Kareng-nee, but otherwise he was extremely apathetic and it was obvious that he would make no effort to redress the grievances alleged against him except under compulsion from the Court of Siam. Accordingly negotiations were entered into and on the 4th January 1874 a treaty was signed between the Government of India and the Government of Siam, to come into force on the 1st January 1875, which provided for efficient means being taken for the repression and punishment of robbers and marauders. A system of passports was established and the possession of one of these gives a British subject certain privileges in the establishment of his civil claims. Provision was made for the establishment in Zeng-mai of a Siamese civil court and for the deputation of a British officer to be present in that court to sit as joint Judge; and it was arranged that measures should be introduced to regulate the action of the proprietors of teak forests in granting permits for felling and dragging timber. Shortly afterwards the son of the Zeng-mai chief visited Rangoon and quiet has gradually been restored. The

establishment of a mixed court has not been altogether successful, and the Zeng-mai chief in 1875 courteously but determinedly resisted an endeavour that was made by the British officer to induce him to change the fiscal systen and the "internal administration of justice". The steps taken in Bang-kok and Zeng-mai, and possibly also the action of the British Government in Kareng-nee which will be alluded to further on, have resulted in checking the inroads of armed freebooters but have not been so completely successful in ensuring safety for the foresters who go annually into the foreign forests with large sums of money to pay their workmen and thus offer a tempting bait to the lawless, or a thoroughly satisfactory system of working the foreign forests, but it must be admitted that these drawbacks do not seem to interfere seriously with the trade considering the vast amount of timber brought down annually to Maulmain.

In 1873-74 the Thoon-tshay circle in the north of Rangoon, east of the Irrawaddy, was added to Henzada and 1875-76 a new district was formed in the delta of the Irrawaddy carved out of Bassein, Rangoon and Henzada, and called Thoon-khwa, with the head-quarters at Ma-oo-beng.

There had long been some uncertainty as to what was the British boundary on the north-east of the Poung-loung mountains, though there hardly seemed room for doubt, and the matter was, so far as the British are concerned, set at rest when the question of the boundaries of Western Kareng-nee was decided by Sir Douglas Forsyth's mission in 1875 and their demarcation by British officers was carried out in the following year, of which an account will be found further on when the course of affairs with Upper Burma is related. One of the results of the measures taken was the formation, in 1876, of a Kareng hills sub-division in the Toung-ngoo district, east of the Tsit-toung, placed under an Assistant Commissioner with an increased police force.

In 1876-77 Tavoy island was transferred from Tavoy to Mergui and slight and unimportant changes were made in the boundaries of Thoon-khwa. In 1877 similar slight changes were made between Rangoon and Shwe-gyeng and in 1878 all that portion of Henzada which was on the east of the Irrawaddy, except two revenue circles in the south, was formed into a separate district and called Tharrawaddy, with its head-quarters now at a new settlement of the same name.

Municipalities.

An important change in administration was made in 1874 by the introduction of a Municipal Act and the formation of Municipal Committees in some of the larger towns. The Municipal Commissioners are appointed by

the Chief Commissioner and at least two-fifths of their number must be persons other than salaried officers of Government. The President is appointed by the Chief Commissioner; the Secretary is elected by the Committee. The meetings are monthly and may be general or special, the quorum necessary for transaction of business at the latter being one-half of the members. The framing of bye-laws and rules of business or the imposition, abolition or alteration of taxation can only take place at a special meeting. The Municipal Committees have power to make assessments and impose taxes not exceeding five per cent., on houses, buildings and lands, according to the actual value, or a tax on land covered by buildings at a rate not exceeding one pie per square foot per annum, or a tax according to the number of posts in each house not exceeding a fixed rate (but only one of these can be imposed at the same time upon the same property); taxes on carriages, carts, boats, horses, ponies and elephants; fees on licenses to the drivers or proprietors of carriages, carts and boats plying for hire; fees on licenses to construct and establish and keep open markets, wharves and slaughter-houses; any other or further tax recommended by two-thirds of the Committee, approved by the Chief Commissioner, and sanctioned by the Governor-General. They may also impose a lighting-rate and a water-rate, and in lieu of either or both a rate on native houses not exceeding one pie for every three square feet of ground covered by such houses. Before imposing any tax a fortnight's publication must be given so that persons may put in objections, and six weeks later, if there have been no objections or if the objections have been overruled and if the Chief Commissioner's sanction has been obtained, the tax may be imposed. No such formality is required in imposing rates, the Chief Commissioner's sanction being sufficient. The money thus obtained is expended by the Committee for municipal purposes, such as keeping the streets in order, regulating the markets, registering vital statistics, paying the police, &c. In 1879 the several Municipalities took over the hospitals and schools, other than Government and denominational schools, situated within municipal limits.

During the first year the Act was extended to and Committees appointed in Rangoon (31st July 1874), Maulmain (31st July), Toung-ngoo (31st July), Bassein (30th September), Akyab (1st October), Henzada (5th November) and Prome (12th November).

The receipts including the opening balances, loans and grants from Provincial and Local Funds, and the expenditure of each have been—

Year.	Rangoon.		Bassein.		Henzada.		Prome.		Maulmain.		Toung-ngoo.		Akyab.	
	Receipts.	Expenditure.	Receipts.	Expenditure.	Receipts.	Expenditure.	Receipts.	Expenditure.	Receipts.	Expenditure.	Receipts.	Expenditure.	Receipts.	Expenditure.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1874-75*a* ..	440,920*b*	404,960	54,460	47,630	32,200	15,110	72,790*c*	90,100	98,350	71,710	53,470	48,380	42,420*d*	21,890
1875-76 ..	899,940*e*	800,150*f*	97,780	79,460	37,900	24,360	109,140	85,100*g*	105,160	94,940	58,220	56,250	44,480	46,260
1876-77 ..	527,350	655,920*i*	81,210	92,040	45,650	42,970*k*	79,830	86,120*l*	113,670	134,900	58,980	60,140	90,660	35,700
1877-78 ..	735,830	89,250	102,550	85,720	78,830	40,980	126,870	79,840	114,260	107,340	59,470	59,440	104,130	82,950
1878-79 ..	690,530	568,690	115,810	90,670	91,990	27,710*h*	146,530	125,200	121,260	111,370	54,270	47,950	102,630	86,700

a Including opening balance of Rs. 7,440, Rs. 10,740, Rs. 8,690, Rs. 5,340, Rs. 14,770, Rs. 9,770 and Rs. 3,790 respectively, and loans and grants. *b* Including a loan of Rs. 11,100. *c* Including a loan of Rs. 7,260. *d* Including a loan of Rs. 12,460. *e* Including a loan of Rs. 27,000. *f* Includes repayment of loan, Rs. 170,000. *g* Includes repayment of loan, Rs. 36,760. *h* Includes repayment of loan, Rs. 12,000. *i* Includes payment of debt, Rs. 30,000. *k* Includes payment of debt, Rs. 15,000. *l* Includes payment of debt, Rs. 20,000. The Henzada Municipality which had a closing balance of Rs. 63,980 is saving its money for a complete scheme of conservancy.

Legislation.

The power of legislation lies in the Council of the Viceroy. Draft Acts are submitted by the local Government after communication with the Executive Council in India and a general approval of the principles to be embodied. In matters which are of more extended application the initiative may come from any local Government in India or from the Government of India itself; opinions are called for and considered and an Act is drafted by the particular department of the Supreme Government concerned, sent round for further remarks and opinions and, eventually, when revised and corrected, submitted to the Legislative Council in the form of a Bill. Thus the Acts in force are (*a*) those of universal application throughout India, such as the Indian Penal Code, (*b*) *special Acts* or such as relate to particular subjects (as the Excise Act in force in British Burma, Northern India and Coorg, the Arms Act and the Opium Act), (*c*) *local Acts* in force in British Burma only (such as the Ferries Act and the Land and Revenue Act). Acts are often passed containing a proviso that they may be extended by the Governor-General or by the local Government and these come into force when so extended. Certain Acts have been specially put in force by an extending section embodied in some other Act, as Act XIX. of 1841, for the protection of moveable and immoveable property against wrongful possession in the case of succession, by section 95 of the Burma Courts Act (XVII. of 1875). Under the authority of 33 Vic., Cap. III., the Secretary of State can authorize the Governor-General in Council to make "regulations" which become law without being passed by the Legislative Council, and this has been done as regards the Hill Tracts of Arakan. Thus whether the law be embodied in a general, a special or a local Act or in a regulation, it derives its force and authority solely from the Governor-General in Council (Legislative in the first three and Executive in the last case).

An important change was made in 1868. British Burma is an "Administration" and not a local Government: it very often happened that "the local Government" was, by a clause in an Act, authorized to extend the whole of it or some of its provisions; up to that year the "local Government", so far as British Burma was concerned, was the Governor-General in Council, but since the passing of Act I. of 1868 the term local Government when used in any Act includes a Chief Commissioner except the contrary appears from the context. The Chief Commissioner can thus nominally extend Acts of his own mere motion; nominally because the system of Indian administration is one of strict subordination, and even so high an authority as a Chief Commissioner does not extend the provisions of an Act until he has made sure that his action is approved by the Supreme Government.

Judicial.

In Arakan and Tenasserim the judicial system was in some points similar. In each district in Arakan there was an European officer, at one time called Assistant Superintendent, at others Senior Assistant to the Commissioner or Deputy Commissioner, who was responsible for his district generally and performed the duties of Magistrate and of Civil Judge, trying important cases himself, committing offenders charged with the more serious offences to the Court of Session, and hearing appeals and generally supervising the native Judicial Officers, each one of whom with criminal and revenue powers, and whether called Myo-ook or Goung-gyoop, was in charge of a township. For the larger towns and for all civil suits in each district a special officer was appointed, called a Tara-ma-thoogyee, who tried all civil suits for sums not exceeding Rs. 500. In 1862 Myo-ook were appointed with civil and criminal powers as elsewere in Burma. The supreme control, both in Arakan and Tenasserim, was in the Sudder Adâlat in Calcutta. In Tenasserim the judicial administration was carried on in much the same way, except that the Goung-gyoop had civil powers and that there was no Tara-ma-thoogyee, but in about 1827 the Commissioner was empowered to carry capital sentences into execution without further reference. Trial by jury was introduced in 1829 but was subsequently abolished. In 1840 a scheme for investing in the Recorder of the Prince of Wales Island an appellate jurisdiction in suits among European settlers and others in which points of English commercial law were involved received the serious attention of the Government, but it was never carried out. A very similar system was introduced into Pegu; the Myo-ook of townships tried petty cases, both criminal and civil; in the large towns there was a Tsit-ke, who had somewhat more extensive judicial powers; and in several districts there were Assistant Commissioners with still higher powers: all of these were subordinate to the Deputy Commissioner to whom appeals lay and who himself was under the Commissioner, who had the highest powers but could not try any civil original suit his civil powers being limited to hearing appeals. In Rangoon itself there was a Town Magistrate and an Assistant Magistrate with criminal powers only, the civil work being carried on by the Tsit-ke and the Deputy Commissioner. Some years after the annexation the Deputy Commissioner was relieved of all judicial duties in the town and his place in so far taken by an officer called a Judicial Deputy Commissioner.

When the existing province was formed as few changes as possible were made in the system but numerous reductions were recommended and carried out in the numerical strength of the

officers and establishments: the Myo-ook, Assistant Commissioners and Deputy Commissioners were still judicial officers; each province was made a division with a Commissioner in charge who became Sessions Judge; and the Chief Commissioner had the powers of a High Court or ultimate court of appeal and revision. The Indian Penal Code and Criminal Procedure Code on the one hand and the Civil Procedure Code on the other were put in force and such other Acts as were considered applicable were extended to the province. The principal changes since have been the abolition of the Court of the Judicial Deputy Commissioner of Rangoon and the appointment instead of a Recorder with powers in Rangoon and Akyab; the appointment of a Recorder in Maulmain, and the subsequent abolition of the office with the substitution of a Judge subordinate to the Judicial Commissioner; the appointment of a Judicial Commissioner and the relief of the Chief Commissioner of all judicial duties and the establishment of Small Cause Courts in Rangoon and Maulmain.

The judicial courts were finally regulated by Act XVII. of 1875. There are now six classes of civil courts, besides the Courts of Small Causes in Rangoon, the Court of the Recorder and the Special Court:—

Name and grade of court.	Extent of jurisdiction.
(*a*). The Court of the Extra Assistant Commissioner of the 3rd class.	1. Powers of a civil court where the amount or value of the subject-matter of the suit does not exceed five hundred rupees.
(*b*). The Court of the Extra Assistant Commissioner of the 2nd class, the Court of the Extra Assistant Commissioner of the 1st class, and the Court of the Assistant Commissioner.	1. Powers of a civil court where the amount or value of the subject-matter of the suit does not exceed three thousand rupees.
(*c*). The Court of the Deputy Commissioner.	1. Powers of a civil court in all suits, whatever be the amount or value of the subject-matter thereof. 2. Powers of a District Judge. 3. Power to hear appeals from decrees and orders in original suits and proceedings of the courts of grades (*a*) and (*b*), where such appeal is allowed by law. 4. Power to direct the business in the Courts of grades (*a*) and (*b*) to be distributed among such courts in such way as it thinks fit.
(*d*). The Court of the Judge of the town of Maulmain.	1. Powers of a District Judge. 2. Powers of a civil court, whatever be the amount or value of the subject-matter of the suit.

Name and grade of court.	Extent of jurisdiction.
	3. Powers of a Court of Small Causes where the amount or value of the subject-matter of the suit does not exceed one thousand rupees.
(*e*). The Court of the Commissioner.	1. Power to withdraw any suit or appeal instituted in any court within the local limits of his jurisdiction, except a court of Small Causes or the court of the Judge of the town of Maulmain, and to try such suit or appeal himself or refer it for trial to any subordinate court of competent jurisdiction as to the amount or value of the subject-matter thereof. 2. Power to hear appeals from decrees and orders in original suits and proceedings of the courts of grade (*c*), where such appeal is allowed by law.
(*f*). The Court of the Judicial Commissioner.	1. Powers of a High Court in relation to all courts in British Burma, including Small Cause Courts, except the Court of the Recorder of Rangoon and the Court of Small Causes of Rangoon. 2. Power to remove and try any suit, appeal or other proceeding instituted in any subordinate court, except a Court of Small Causes, or to refer it to any court of competent jurisdiction as to the value or amount of the subject-matter thereof. 3. Power to hear appeals from decrees and orders in original suits and proceedings of the Court of the Commissioner, where such appeal is allowed by law. 4. Power to hear second appeals from Courts of grade (*c*) where the original decree has been reversed or modified, or when the decision has been confirmed on a question of law or custom having the force of law, or the construction of any document, or the admissibility of any evidence affecting the merits of the case, and power to hear and decide questions on these matters submitted at the request of the aggrieved party when the decision has been confirmed on one or more of them. 5. Power to decide questions of law or usage having the force of law, or as to the construction of a document, or as to the admissibility of any evidence affecting the merits of a case, submitted to him by an appellate judge having doubts on the point. The Chief Commissioner may direct that the civil appellate jurisdiction of any Commissioner shall be transferred to the Judicial Commissioner, and may re-transfer it.

The Recorder's Court is presided over by a Barrister of not less than five years' standing, who sits ordinarily in Rangoon, but may for certain purposes be directed by the Chief Commis-

sioner to sit in Akyab, Bassein or Maulmain. In civil matters he has jurisdiction in all cases in Rangoon except those cognizable by the Small Cause Court Judges, and all appeals from the Small Cause Court Judges which can be made are made to him. In insolvent cases he has jurisdiction in Rangoon, Maulmain, Akyab and Bassein; in cases under the Divorce Act (which does not apply to Booddhists) he has jurisdiction throughout the province. In cases in which the matter in dispute exceeds Rs. 3,000 but is less than Rs. 10,000 in value the appeal from him lies to the High Court in Bengal, but if the value is Rs. 10,000 or upwards the appeal lies to the Queen in Council. He has Admiralty jurisdiction throughout the province including the territorial waters thereof. On the criminal side he has the powers of a Sessions Judge, that is can try all persons duly committed and award death subject to confirmation by the Special Court in Rangoon, and the powers of a High Court over all European British subjects and persons charged jointly with British subjects (can award death subject to confirmation by the High Court in Bengal) throughout the province. Trials in his court are by jury. The Special Court is ordinarily constituted by the Judicial Commissioner and the Recorder of Rangoon sitting together, but the Chief Commissioner may direct any Commissioner to sit as an additional Judge during the hearing of any case. This court hears appeals from the Judicial Commissioner when he has been sitting as a Sesssions Judge and from the Judge of the town of Maulmain in civil suits or proceedings; it also decides doubtful points submitted to it either by the Judicial Commissioner or by the Recorder, and all capital sentences passed by the Judicial Commissioner and all such sentences passed by the Recorder, except on European British subjects, are submitted to it for confirmation.

In 1862 the total number of civil suits instituted was 19,487 and of appeals 1,173. In 1872, excluding the courts under the Recorder of Rangoon, these had risen to 21,246 and 1,217, and in 1878 to 28,828 and 1,937. Included in these are the civil suits tried in the Recorder's Court in Maulmain as long as it existed and in the Court of the Judge of Maulmain. The suits instituted there may, for the purpose of examining the general nature of the litigation, be excluded and joined to those instituted in Rangoon and in the town of Akyab as all three are large mercantile towns with a very considerable foreign population. Out of the remaining 17,870 original suits in 1872 and 25,209 in 1878 only 64 and 48 were instituted in the chief courts of districts presided over by the Deputy Commissioners as their jurisdiction is ordinarily confined to original suits of over Rs. 3,000 in value; these also may be

thrown out of consideration. With these deductions the number of suits, classified, was, in :—

Year.	For money.	For value of goods sold.	For breach of contract.	For personal property or value thereof.	For damages.	For real property.	For specific performance.	To establish rights		For an account.	Relating to marriage.	Partition.	All others.	Total.
								Real.	Personal.					
1872 ...	6,934	2,337	1,566	2,368	1,928	961	168	104	313	2	1,024	88	13	17,806
1878 ...	9,332	3,292	1,706	3,112	3,965	1,797	80	31		31	11	984	127	25,161

On the criminal side the powers of the court depend upon those given to the presiding Magistrate: the Myo-ook or Tsit-ke (called Extra Assistant Commissioner) may have the powers of a a 3rd or of a 2nd grade Magistrate, an Assistant Commissioner of a 1st, a 2nd or a 3rd; the Deputy Commissioner has always the powers of a 1st grade Magistrate and in practice is usually invested with authority to try all offences not punishable with death and to pass sentences not exceeding seven years rigorous imprisonment or seven years transportation, sentences of over three years being subject to confirmation by the Sessions Judge. Appeals lie to the District Magistrate (Deputy Commissioner) from sentences passed by Magistrates of the 2nd and 3rd grade and to the Sessions Judge from sentences passed by Magistrates of the 1st grade, including the District Magistrate when he is not exercising his special powers, when he is the appeal lies to the Judicial Commissioner. Trials in the Sessions Court of persons charged with murder or with the commission of offences for which the District Magistrate considers that seven years would be an insufficient punishment and who, therefore, in such cases commits the accused to the sessions are tried with Assessors, whose opinion the presiding Judge is not bound to accept and it by no means unfrequently happens that the Assessors find an accused not guilty of murder yet the Sessions Judge sentences him to be hanged and the sentence is confirmed by the Judicial Commissioner and carried out. The Chief Commissioner has power to transfer the criminal jurisdiction of a Sessions Judge to the Judicial Commissioner, who then sits as Sessions Judge, and may re transfer it.

The following table gives the number of persons brought to trial for the various classes of offences in 1872 and in 1878 :—

Nature of offences.	1872.	1878.
I.—Offences against the State, the public and justice	8,289	7,357
II.—Offences against the person	15,117	8,470
III.—Offences against property with and without violence	10,855	11,740
IV.—Offences not included above, such as vagrancy, refusal to maintain wife or children, contempt of court, &c.	1,351	293
V.—Offences against special and local laws—		
Excise	1,497	1,819
Gambling	3,396	3,438
All others	3,950	7,520
Total ..	44,455	40,237

The first class includes offences relating to coin, stamps and weights and measures (60 in 1872 and 78 in 1878); against public justice, such as personating a public servant, omitting to give information, disobedience of a lawful order such disobedience causing injury, harbouring an offender, escape from lawful custody, &c., (2,042 and 884); by public servants, as receiving bribes, negligently allowing a prisoner to escape, &c., (274 and 227); false evidence, false complaints or claims, and forgery (231 and 161); public nuisances (3,533 and 3,980); and offences relating to the public peace as rioting and affray (2,149 and 2,047). Class II. includes every offence against the person from murder to defamation and causing annoyance in a state of intoxication. Class III. includes dacoity (without murder), robbery, house-breaking, theft, cheating, mischief, &c. Class IV., as stated in the table, includes vagrancy, contempt of court, disputes about land when such disputes are likely to lead to a breach of the peace, in which case a Magistrate can interfere and can retain the occupant in possession pending a reference to the civil courts. The special and local laws are numerous and relate to excise, forest, post office, telegraphs, gaols, cattle-trespass, contagious diseases, &c.

Police.

The police was differently organized in the three divisions and just before the formation of the province was, in Arakan, composed of eighty men of the Khyeng Levy, two hundred and eighty-seven land police, eighty river police and two hundred and thirty gaol guards, besides three hundred and forty men of the Arakan Local Battalion employed in detachments throughout the division on purely police duties.

This local battalion, the sanctioned strength of which was one thousand one hundred but which rarely had more than seven hundred men owing to the difficulty in getting recruits, was under the military authorities and one-half was kept in Akyab as a garrison. In Pegu there was the Pegu Light Infantry, eight hundred strong, chiefly Burmans with a few Malays, a corps on a military footing but subordinate to the civil Government, with its head-quarters at Myan-oung and its main detachments in posts guarding the northern frontier, and a regular police force consisting of four battalions and one company.* They were armed with muskets and to a certain extent drilled: There was also a separate establishment of gaol guards, two hundred and eighteen strong, armed and disciplined much in the same way as the regular police, but consisting chiefly of natives of India. There was also a temporary establishment of the same description, of a strength varying in proportion to the number of prisoners. In addition there were forty-seven guard and despatch boats with from seven to twelve men each, armed as the other police; those employed on the frontier carried each two wall-pieces. There was, besides, the Pegu Sapper Battalion, raised in Madras for local service in Pegu, numbering one thousand and seventy-one men which occupied in detachments Pegu, Shwe-gyeng, Tsit-toung, Bhee-leng, Kyaik-hto, Kyouk-gyee and Kaw-loo-do, all except Pegu being in Tenasserim; the head-quarters were at Shwe-gyeng. In Tenasserim there were one hundred and ninety-six interior police, three hundred and ninety-nine provincial police, two hundred of the Kareng Levy, four hundred and four town police and two hundred and forty river police, in all one thousand four hundred and thirty-nine men. The military force consisted of two battalions of European infantry, six companies of European artillery, three horse field batteries, ten regiments of Native Infantry, exclusive of the Pegu Sapper Battalion, and two companies of Sappers and Miners: these were stationed in Rangoon, Thayetmyo, Toung-ngoo and Maulmain, with detachments at Pegu, Henzada, Myan-oung, Prome, Bassein, Mye-dai, Shwe-gyeng, Mergui and Tavoy.

When the province was formed as it now exists very considerable reductions took place; the detachments were all withdrawn to head-quarters, and the strength of the garrison considerably reduced, the Arakan Battalion and the Pegu Light Infantry and, shortly afterwards, the Pegu Sapper Battalion being disbanded. At about the same time (1861 in Pegu and 1862 in Arakan and Tenasserim) the existing police force was organized under Act V. of 1861. To each district was given a Superintendent (in some with one or

* Rangoon one company, Bassein six companies, Tharrawaddy six companies (two detached to Henzada), Prome twelve companies, Toung-ngoo six companies.

more Assistant Superintendents), with Inspectors, Head Constables, Sergeants, and Constables, who was immediately subordinate to, and in direct communication with, the Inspector-General in Rangoon. The whole force numbered 6,109 men, costing Rs. 1,205,268 which was less by 2,812 men and about Rs. 545,000 than before. Of this force, however, about twelve hundred were employed in guarding gaols, treasuries and courts and in strictly municipal duties, and at least one-half in checking aggression from foreign States or violent crime committed by individuals from foreign States. But few changes have been made since; the strength and pay has varied and latterly the District Magistrate has been given a greater power of control. In 1872 the strength was 536 officers, and 5,820 men. Deducting those employed in towns and as gaol and treasury guards, &c., there was one constable to every eighteen square miles and including those employed in towns one to every five hundred and eight inhabitants: the total cost was Rs. 1,374,820. In 1878 the total strength was 606 officers and 6,410 men, which, calculating in the same way as before, gives one constable to every seventeen square miles and to every five hundred and nine of the population: the total cost in that year was Rs. 1,512,197.

The most important offences with which the police have to cope are murders, gang robberies with and without murder, robberies, and thefts, cattle and simple. At first gang robberies were numerous: the delta of the Irrawaddy with its vast net-work of creeks and its forests affords excellent hiding ground, and the proximity of the northern districts to the frontier and the eastern to the Shan States of Zeng-mai and Ra-haing enabled gangs to penetrate with facility whilst the mountainous forest-clad and well-watered country gave them convenient shelter. The class of dacoity varied with the nature of the country. In Rangoon and Bassein the bands consisted chiefly of outlaws of our own who collected round some daring leader and defied the police for years. In Prome, which then included Thayet, and in Toung-ngoo gangs would come across the frontier at the end of the rains and remain till the commencement of the next, often enough partly composed of men who had fled from warrants issued on our side: there were two peculiar features in the dacoities in this part of the country; they were aggravated by torture and the robbers often carried away one or two persons from the village they attacked to protect themselves from being fired on by pursuers, and these were generally released after they had gone a little way. In Shwe-gyeng, or as it was at first called Martaban, the dacoities were chiefly committed by small parties which separated themselves from the trading caravans of

Shan who come down annually in January and go back in February or March. In the south of Shwe-gyeng the Toung-thoo gave trouble not only in their own neighbourhood but in Amherst. They used to travel about as petty merchants but were ready enough to throw off the pedler's pack and appear as dacoits, and as there were and are Toung-thoo villages dotted all over the plains a Toung-thoo dacoit found a safe and ready shelter for himself and his plunder ; after a dacoity the gang dispersed and the members re-assumed the respectable air of merchants or cultivators. The Shan, who were not inhabitants of British territory, roved in bands about the frontier of Amherst and made their attacks on defenceless villages or on solitary unprotected travellers or foresters. The attacks were made on places far removed from police posts and off the lines of patrol, and before information of the raid reached the police the gang had made good its retreat into foreign territory.

The facility for disposing of stolen cattle in foreign territories, the ease with which they could be marched through the forests far removed from villages, and the habit of the people of turning their animals out to graze with no herd and unlooked for for days led naturally to large numbers of thefts. In Pegu the animals driven off were horned cattle, and often enough the thief exchanged the stolen beasts for others in Upper Burma which he brought back and sold. In Tenasserim though horned cattle were often taken they were not driven across the eastern frontier where they would have had small value, one of the most important articles of import thence being buffaloes and more especially bullocks, but along the eastern slopes of the Martaban hills and round by Bheeleng and Kyaik-hto across the Tsit-toung to Pegu where they found a ready sale. The numerous foresters in Amherst used elephants for their work as did those in Zeng-mai and Rahaing and these were in great demand on both sides of the frontier; the foresters travelling or working turned out their elephants at night, the two hind feet tied together but with no one to look after them and the thief sneaked up to the animal, cut the hobbles with a sharp knife, and with a leaden ball slung in a net with unheard but severe blows drove the elephant before him till out of ear-shot when, mounting on its neck, he drove it across the frontier. If a bell was attached to the animal, as was sometimes the case, the thief had only to wait till the elephant had strayed to some distance from the camp and all therein were asleep, for no guard or sentries were posted or would have remained awake if they had been. The thief often made a trebly good thing out of it; having stolen A's elephant in British territory he sold it to B in Rahaing

and some weeks afterwards stole it again and brought it openly across the frontier at a spot many miles from the place where he had crossed eastward; if he was caught he asserted that he had brought it from Rahaing and at the worst he lost nothing, if he was not caught he sold it to some forester from whom he stole it again a month or less afterwards and re-exported it. This was much facilitated by the nature of the country; an animal stolen near the head-waters of the Attaran would be sold in the neighbourhood, stolen again and brought back *viâ* Kaw-ka-riet, sold and stolen again and exported *viâ* Hlaing-bhwai.

What dacoity was may best be learned from the following extracts from the official reports :—

"In May 1862 a working gang of no less than twenty convicts "escaped from the peons near Rangoon while employed at out-door "labour. They were all long sentence men. It was soon found out "that they separated into two parties,—one went up to the hills near "the source of the Pegu river, the other went up the Irrawaddy to "the Tharrawaddy portion of the Myanoung district, to which local-"ity they belonged. During the rains they were quiet, but in the "Rangoon district the party first described were known to be under "Nga Tsan-doon, a well-known plucky leader of dacoits. That they "would make a blow in the dry season was certain, and so in the "end of November they plundered a village and, from the articles "taken—rice and clothing in large quantities—it was evident they "intended to have a jungle encampment during the season. "Mr. Doyle took up the hunt with great tact and perseverance in a "most difficult country and against these old hands. Seven were "captured alive, one was cut down in the chase, two were killed "in a quarrel among the gang, one died and only three escaped, "Nga Tsan-doon, the leader, being one, but he was known to be "wounded. * * * *

"Shwe-maik and another, who were lieutenants of a well-"known dacoit chief, Moung Nga Kaw, were apprehended with "eight others in a wild part of the delta jungle after a careful "search carried out by Captain Middleton and Mr. Inspector "Dunlop. * * * *

"The Superintendent remarks that shortly after the escape of "convicts from the Rangoon gaol in May thefts and burglaries "increased considerably in the northern portion of the district. "It was subsequently ascertained that the party consisted of "Thit-hpoon (shot by the police in the Myanoung district), Nga "Kho, both Rangoon escapes, and Shwe Goung-ga-le, a well "known dacoit who was in the Bassein gaol under sentence for "fourteen years and escaped. He has since been captured in the

"Bassein district. The dacoities in this district were committed by "two gangs of well-known bushrangers who had heretofore resisted "the authorities with unusual daring and success. * * * *

"In this last year, indeed, six of the twenty-two cases of "dacoity were committed by the May escapes from the Rangoon "gaol aided by some men from the other side of the frontier. The "escaped convicts had been only a few days out of gaol when they "successfully plundered a large boat on the Irrawaddy. Before "they landed the police were in pursuit. They got on shore and "took to the jungle, leaving almost all the property behind them. "One was then captured, and another who savagely resisted an "attempt to arrest him was shot. In quick succession they com-"mitted five dacoities on the Tharrawaddy side, but were rapidly "suppressed and that portion of the district is quiet again. The "old Myanoung gangs, though seriously checked, continued their "depredations during the dry season, but Captain Montgomery at "the close of the rains, and before they had commenced operations "in the present dry weather, succeeded in finding out their camp. "They had all coalesced for the purpose of making some serious "attack so as to keep up their prestige, and he found a strong "body of about thirty, almost all outlaws. With patience and tact "Captain Montgomery found out their hiding place, and attacked "them with a much smaller body of police. In December last "they fled into the close jungle, leaving their huts, clothing and "some few arms which were all at once destroyed. Several "shots were exchanged and four dacoits wounded, one of whom "was the chief, Nga Pyo-Todaya. It has been discovered since "that the result of this well-timed surprise has been to create "suspicion and quarrelling among themselves, each accusing the "other of treachery. This was followed by a second surprise "of one of the small gangs in January in which the celebrated "chief Shwe-Daik-gyee was wounded, and one dacoit and one "policeman killed. One of his followers too, trying to get food "from a village, was shot down. The Superintendent remarks on "the change in the tone of the villagers. The Chief Commis-"sioner is aware that two years ago the people could scarcely be "got to talk of the dacoits even, and information was scarcely "procurable. Captain Montgomery reports that the villagers are "now coming forward willingly and volunteer to assist in crushing "the gangs entirely.

"Dacoities of all kinds have increased (in 1863 in Prome) "from twenty-nine to fifty-one cases,—a very serious increase and "due entirely to gangs from Upper Burma. Of the above fifty-one "cases three were attended with murder against two in 1862.

"In one case a gang under Nga Tso-kyaw-shay, a well-known "up-country dacoit, attacked the village of Kan-gyee in the "Padoung circle. They brutally tortured an unfortunate woman "with fire, and so severely that she subsequently died. The "second case was a dacoity in the village of Padoung itself, "when the gang was headed by Nga Tso-ka-pee-lee. They carried "off a young girl and murdered her outside the village. It is the "custom of dacoit gangs to carry off with them one or two persons "from the house they may attack to protect themselves from "being fired on by pursuers, but these are generally released after "they have gone a little way. In this case the poor girl was "killed just outside the village, and from information subsequently "obtained it would appear the murder was committed by one of "the gang called Nga Ka-do in revenge for a severe wound he had "just received in the attack. The third case was a boat dacoity, "the leader of the gang being Nga Toon-hla, an escaped convict "from the Rangoon gaol. A young lad in the boat was killed by "a musket shot from the dacoits. All the foregoing cases of "'dacoity with murder' were committed by gangs from Upper Bur-"ma. Of the remaining forty-eight cases of dacoity, the Superin-"tendent reports that no less than forty-four were committed by "gangs from the Burman territories. Thus eleven occurred on the "eastern frontier, close on the boundary line, fourteen similarly on "the western frontier, three in Thayet-myo, five in the Kama circle, "just below Thayet-myo, seven in Padoung just below that, and four "south-eastward of Prome itself, while four were committed in "the southern division by residents of British Burma. Regarding "the above classification the Superintendent remarks that the four-"teen dacoities in the western frontier were all simple, half of them "on pedlers or emigrants and within a mile of the frontier. So, "of the eleven cases on the eastern frontier, they were committed "mostly close to the boundary and were all unaccompanied with "grievous hurt. In every case the dacoits were traced across the "frontier. Of the three cases in Thayet-myo itself, two were com-"mitted by a gang under a well-known leader, Nga Pya, from "Upper Burma. Those in the Kama circle were led by Nga "Nee-naw, a well-known leader, subsequently killed. Those in "the Padoung circle, seven in number (as well as two with murder "described previously), were committed by gangs under Nga Tso-"ka-pee-lee and Nga Tso-kyaw-shay, who have paid yearly visits "to our territories, and whose crimes are generally aggravated by "torture or violence. The haunt of Nga-kyaw-shay's gang was "searched out by the police, who got their food, some clothing "and arms, but none of the dacoits were captured. One of the

"dacoits who got separated from the gang was shot by the villagers; "he was a criminal of note named Nga Ket-gyee and had been "concerned in a brutal murder the previous year. Again the "police came across the gang in the hills, and exchanged shots, "wounding one of them, but effecting no capture. The dacoities "south-east of Prome were committed by a frontier gang who "came down in March. They returned in June but were met and "fired into by a party of police under Mr. Inspector Wood and "they returned without making any attack. One of the dacoities "was committed by a gang under two escaped convicts, Nga Toon-"hla and Shwe Pan. This latter was captured and sentenced to "transportation for life. He was a reckless criminal, and tried to "get up outbreaks both in the Prome and Rangoon gaols while "under sentence for dacoity".

In some of its main features and in the frequency of its occurrence this class of crime has changed. Gangs still come across the frontier and commit outrages in the border districts, but they no longer receive such active assistance from our people as formerly, and no longer remain banded together throughout the season, hiding in the jungles, fed and supplied with information by villagers and carrying out a pre-arranged series of dacoities but make a rush and retire, and torture and cold blooded murder have disappeared almost entirely; these aggravations of the offence are at any rate no longer the rule but the exception. In the delta of the Irrawaddy, however, gangs spring up either headed by some well-known and actually trained leaders from Upper Burma who collect followers (Gnyoung-doon at the northern entrance of the Pan-hlaing, the rendezvous of traders, boatmen and others who go to and fro to Upper Burma, is the great recruiting ground for the dacoit leaders who select strolling players and other idle, dissolute and reckless characters) or by some desperate outlaw from British territory. Unfortunately owing to the reckless, passionate, exciteable character of the people, to old habits and associations acquired in times of organized misgovernment, to the positive fascination which an open air, unrestrained, reckless, riotous life, varied by the excitement of night attacks, and the delights of plundering has to a Burman,* to the difficulties of communication, to the sparseness of the population, to the distances apart of the police stations and the inadequate strengh of the force considering the areas to be protected, the nature of the country, and to the indisposition of the people to help themselves and to resist criminals, it is impossible to feel secure that there may not be an

* The term for dacoity in dacoits *patter* is 'pwai' or feast, festival.

outburst at any time. Thus a body collected in the north-west of the Rangoon district in 1874 in the neighbourhood of Bhoora-ga-le, a few miles north of Pegu, and was known as the Bhoora-ga-le gang. Immediately to the westward is undulating ground gradually rising into the Pegu Roma and covered with dense forest. This extends northwards all along the eastern slopes of the mountains and similar country exists on the west. There are but few villages and these generally on the borders of a broad open plain which stretches away eastward to the Tsit-toung, but little cultivated, covered with kaing grass, and annually inundated, with a few villages scattered about, occupied chiefly by fishermen employed in the fisheries formed by the annual floods and by those who having made some money continue their ordinary avocations as petty traders or cultivators, but make more by lending money. The fisherman's life is a hard and rough one and he resorts largely to opium and spirits and amuses himself by gambling, whilst at the same time he purchases his right to fish by auction and in the excitement bids more than he can really pay. The majority of the inhabitants are thus a rough, drinking, gambling and reckless set with no moral principles to keep them straight. In such a country as this and with such a population a gang of dacoits finds a ready home. The Bhoora-ga-le gang soon made itself heard of. It found friends and supporters everywhere in the neighbourhood and those that were not active in assistance were passive in opposition. The police, owing greatly to the want of immediate European supervision, failed to cope with the mischief and during the rains the leaders visited Mandalay and on some pretence went to the palace. On their return to Pegu they gave out that the King of Burma had given them presents and titles; there was at the time an uneasy feeling and throughout the country a fear of war and trading on this feeling and on their pretended titles they obtained still greater countenance from the villagers. The gang consisted of nine men and in the first five months of 1875 they committed seven dacoities, one of which was with murder, two attempts at murder and three robberies. A villager having been arrested for harbouring them they attacked the house where their friend was confined, shot a constable, liberated the prisoner and made good their retreat. The police set to work energetically, and both the Superintendent and the Inspector-General went to the spot to hunt them down. The Superintendent fell into an ambush and was shot in the right arm when, with some police, in pursuit of the gang. The Inspector-General with another party and accompanied by the Assistant Commissioner attacked a house in the jungles to which the gang had been traced. The attack was successful, the two

leaders were shot and died of their wounds, four of the others were caught and three escaped. This effectually broke up the gang but unhappily the dacoits had been able to return the fire of the police and the Inspector-General was killed.

In 1878 in the Rangoon district alone four organized gangs were broken up; as was one in Thoon-kwa headed by a Kareng-nee or Red Kareng. In February of that year "a man named Nga Paw-"deng excaped from the Toung-ngoo gaol where he was under-"going a sentence of imprisonment for robbery. He had many "friends and relations in the Tharrawaddy district and made his way "thither at once. His companions were a man named Nga Htoon "Ran (who is believed to be Nga Tsan Hla, a man who was "engaged with Nga-paw-deng in the robbery of which the latter "was convicted), a Shan named Nga Noo and Nga Myat Theng, "a Tharrawaddy outlaw. This gang was joined as occasion served "by villagers of different places; they began to commit dacoities "in March, and between that month and the end of the year they "dacoited six times. * * * * The dacoities were accom-"panied by much violence and on more than one occasion by torture.

The following table gives the number of cases of the more important classes of crime at various periods since 1862:—

Year.	Population.	Murders.	Dacoities with and without murder.	Robberies with and without murder.	Cattle-theft.	Ordinary theft.
1862	2,020,634	32	129	75	4,817	
1867	2,329,312	56	229	188	5,801	
1872	2,650,963	64	71	117	950	6,926
1877	3,011,614	64	49	131	690	8,671
1878	3,088,902	87	69	144	736	8,416

Prisons.

Very soon after the cession of Arakan and Tenasserim these were declared to be places of transportation for persons convicted in India, and numbers were sent to the various head-quarter stations for whose reception gaols had to be built; but even as late as 1861 the Tavoy gaol had only a bamboo fence round it. After the Indian mutiny the Andaman islands were selected as a transportation station and many of the Indian convicts were transferred thither. For some reason, possibly because Maulmain was the place to which most convicts had been

sent, the islands were placed under the Commissioner of the Tenasserim and Martaban provinces and so remained for some years until the formation of the existing province, when they were put under the Chief Commisssioner. Still later they, together with the Nicobars, were formed into an independent Chief Commissionership.

For many years after the annexation of Pegu the gaols, generally, were very insecure, and in one place at least the prisoners were for some time secured by a chain being passed through their irons and at each end fastened to a tree. The Rangoon, Bassein, and Prome gaols were the first built and others followed. In 1864 the existing Gaol Department was organized and placed under an Inspector-General, and since then new gaols have been built and existing ones improved and enlarged and the whole system of prison discipline and prison arrangements has been systematized. Generally the principles are that there should be a gaol at the head-quarters of a district, though Prome has none, and smaller gaols, called "Lock-ups", at some outstations, and that extramural labour should be absolutely prohibited. The two main prisons, in Rangoon and Maulmain, are central as well as district gaols; that is not only are they places for the confinement of all prisoners tried and sentenced in the districts and towns in which they are but all long-term convicts are sent to them to work out their term. To some other district gaols, such as that at Thayet-myo, are sent also from certain districts prisoners who have more than six months' imprisonment to undergo; others, such as Henzada, retain only prisoners whose sentence does not exceed six months, and in lock-ups are confined those only whose term does not exceed one month. Burmans sentenced to transportation are now sent to Madras or Bombay and not to the Andamans as it was found that for them escape to the main land was not altogether impossible.

Up to 1864 the prisoners were to a great extent employed on extramural labour, and by this means the various stations in Arakan were made habitable by Europeans; roads were constructed in Akyab, and Kyouk-hpyoo was converted from a deadly swamp into a healthy station; in Pegu a great portion of the site of Rangoon was gradually raised above high water level by the same means and Prome, a pestilential spot from the first, was vastly improved in salubrity by drains being dug and swamps filled up by convict labour. Nor were these the only places where the labour of prisoners was used for the benefit of the honest portion of the population.

The official visitors, who may call for all books and records, inspect the gaols at any time, examine the prisoners and generally

enquire into everything but, except Deputy Commissioners, cannot pass orders, are the Judicial Commissioner and the Inspector-General of Police throughout the province, each Commissioner in his own division and each Deputy Commissioner in his own district. Superintendents or officers in charge are bound to carry out all orders of the Deputy Commissioner, reporting them to the Inspector-General.

Convicted prisoners are divided into three classes each distinguished by its dress, *viz.*, (1) habituals, that is any prisoner convicted more than once; (2) violent or refractory prisoners and those who have escaped or attempted to escape; (3) all others: females, Europeans and Eurasians, and juveniles (as far as may be) are kept apart from the others and by themselves respectively. The labour to be performed is divided into three classes; *hard*, such as piling shot, breaking stones, clearing latrines, grinding wheat, lime or bricks, pressing oil, drawing water, weaving, &c.; *medium*, such as carpentry, paper-making, mat or basket-making, carrying water, &c.; and *light*, such as tailoring, spinning, weeding, polishing, carpenter's and upholsterer's work, &c. Prisoners sentenced to rigorous imprisonment are put to *hard* labour at first and so remain for twelve months or until they are released, if they are released sooner, but none, whatever may be the length of the sentence, are kept to this kind for more than thirty months; gradually they are given *medium*, and, if the sentence is for three years and upwards, eventually *light* labour, but misconduct may retard the transfer from one kind to a lighter or may entail a reversion to a harder kind. The condition of prisoners sentenced to simple imprisonment differs principally in their doing no work, in their not being ironed and in their having somewhat less food. Whilst punishments are provided rewards also are offered, such as promotion to prisoner-warder, a remission of a portion of the sentence or more frequent interviews with friends.

Debtors, who are supported from the money paid in by their creditors, persons sent to gaol for breaches of the Excise Act and revenue defaulters, who are supported by the State, are confined within the same walls but separately from the criminal prisoners.

The average daily number of criminal prisoners in 1862 was 4,022 and in 1879, the last year for which the statistics have been published, was 4,492. The tabular forms accompanying the Annual Gaol Reports have not always been prepared in the same way, and it is not possible to collect thereform any table which would furnish data for comparison for a long series of years. The daily average number in gaol from 1868 to 1877 and the percentage of those forming the

prison population who had been previously convicted were :—

1868	3,725	12·98	1873	4,824	17·44
1869	4,167	13·75	1874	4,786	18·27
1870	4,586	12·60	1875	4,734	19·16
1871	4,413	12·07	1876	5,013	19·33
1872	4,434	18·55	1877	4,778	18·01

In 1878, 18·42 per cent. of those admitted had been previously convicted and in 1879 19·24 per cent.

It is somewhat remarkable that considering their numbers in the province, Hindoos furnish the largest number of convicts and Burmese the smallest. The figures for the three years ending with 1877 were :—

	1875.		1876.		1877.	
	Population in the Province.	Percentage of that population which was in Gaol.	Population in the Province.	Percentage of that population which was in Gaol.	Population in the Province.	Percentage of that population which was in Gaol.
Christians ..	56,221	.71	57,626	·78	31,992	1·08
Mahomedans ..	107,335	·65	110,018	·68	99,171	·62
Hindoos ..	39,407	1·78	40,392	1·84	31,057	2·04
Booddhists ..	2,631,418	·39	2,697,275	·41	2,659,878	·44
Others ..	118,803	·48	121,772	·06	120,507	·53
Total ..	2,953,184	0·43	3,027,084	0·45	2,942,605	0·47

The returns for 1879 show the percentages of the prisoners in gaol on the last day of the year, and these point to the same fact, and, taking that day as a fair guide, there were in gaol throughout the year 0·20 per cent. of the Christian inhabitants, 0·28 of the Mahomedan, 0·74 of the Hindoo, 0·12 of the Burmese and 0·47 of persons of other religions and races, or in all 0·14 of the total population of the province.

In 1862 the gross cost of the Gaol Department was Rs. 257,478 and by 1879 this had risen to Rs. 329,002, but after deducting the gains from the prison labour the nett cost to the State in the latter year was Rs. 240,031 or Rs. 55 per head.

Communications and other public works.

When the various portions of the province came under British dominion the only means of communication were rivers and other water channels, bridle-paths, and tracks across the fields after the crops had been reaped; of roads there were none though traces still existed of some, *e.g.*, the great highway from Pegu to Toung-ngoo constructed by Tabeng-shwe-htee; in both Arakan and Tenasserim road-making was undertaken, but it was not pressed on with any great vigour. After the annexation of Pegu, Lord Dalhousie laid great stress on improving the

means of communication between the new and the old provinces and various new roads were commenced: one was designed to run from Chittagong through Arakan to the Irrawaddy at Prome, and another to connect Toung-ngoo with Maulmain and Maulmain with Tavoy and Mergui; but the work progressed slowly and in 1868, when Arakan and Tenasserim had been in our possession for nearly forty-five years and Pegu for nearly sixteen, there existed only six roads and these incomplete:—from Rangoon to Mye-dai on the north-west frontier; the Rangoon and Pegu section of the Rangoon and Toung-ngoo road; the first section of the great southern road in Tenasserim, that is from Maulmain to Kwan-hla, with a branch from Kwan-hla to Amherst; a short section of a road from Maulmain towards the N.E. frontier which stopped short at the southern bank of the wide river Gyaing; a road from Toung-ngoo to Htan-ta-beng on the bank of the Tsit-toung some six or seven miles lower down; and a road from Shwe-gyeng for some distance towards Toung-ngoo. Ten years later, in 1878, considerable progress had been made in Pegu and some slight advance in Tenasserim and Arakan. A road from Toung-ngoo to Thayet-myo across the Pegu Roma was being pushed on; Prome was connected with Rangoon by a railway, which had taken three years to construct, and feeder roads to it were being made; the road from Akyab towards Chittagong had been carried further; and the road from Martaban, opposite Maulmain, northwards towards Shwe-gyeng and from Kwan-hla southwards as far as Re were in hand. Still in roads and means of land communication the province is undoubtedly backward. The Thayet-myo and Toung-ngoo road is not complete, so that our two advanced military posts are cut off from each other; the road across the Arakan Roma is almost impassible for infantry, and certainly is so for guns; Maulmain, Tavoy and Mergui are isolated from each other, as are Sandoway, Kyouk-hpyoo and Akyab. Notwithstanding the opening of a new canal between the Pegu and the Tsit-toung whereby the journey has been shortened, Toung-ngoo can only be reached from Rangoon in twelve or sometimes in twenty days by a laden boat, and owing to the shallowness of the river above Shwe-gyeng boats of over twelve tons burthen cannot ascend during the fine season. In some places district roads have been made from local funds but in few cases are they in very excellent order. As a general rule there is little or no cart traffic till the rice crops are gathered and by that time, except in the south of the delta of the Irrawaddy where the creeks are tidal, the streams have fallen considerably and can either be forded by carts going through the rice fields to the nearest market and making a track for themselves which will be used till the

ground is ploughed up again next rains and cart traffic ceases, or temporary bridges are thrown across by one or more villagers as works of merit. In not a few cases these bridges are permanent structures, the roadway being a foot or so above the ordinary level of the water when cart traffic commences, which are completely submerged in the rains, not even the hand-rails being visible. Towards the south of Pegu and in parts of Arakan and Tenasserim, the network of tidal creeks are used as channels of communication, even large boats going by their means to the neighbourhood of the threshing floors and of the grain stores.

The Rangoon and Irrawaddy Valley (State) Railway, the greater part of which takes up the old Rangoon and Mye-dai road from a mile or two north of Hmaw-bhee nearly to Prome, was first projected in 1868, but it was not until 1873 that an estimate was prepared and sanctioned. In 1874, owing to the scarcity in Bengal, orders were given to commence the work to give employment to the immigrants, and the first sod was turned in July of that year; the first train was run on the 1st May 1877, and the first train open to public traffic from Rangoon to Prome, completing the distance in two days, on the 2nd; the first through train to Prome ran on the 1st October of that year. The gross cost of construction, including that of rolling-stock, &c., up to the end of 1878-79 was Rs. 11,748,702, the gross cost of working in that year, the first complete one, was Rs. 927,170, and the gross earnings Rs. 976,070: the nett earnings were therefore Rs. 48,900. The year 1879-80 has not been a good one for the railway in consequence of the partial failure of the rice crops between Ko-hnit-rwa and Thai-goon due to a deficiency in the rainfall, but the falling off was only in goods traffic, the passenger traffic having increased; the year has not yet expired, and the complete figures have not been published. A nett profit of nearly Rs. 40,000 is expected in 1880-81 if nothing unforeseen occurs.

The following table gives the cost of maintenance (permanent-way, rolling-stock &c.) and the earnings during 1878-79:—

Earnings.	Rs.	*Expenditure.*	Rs.
Coaching traffic	707,630	Maintenance of way, works and stations	337,618
Goods traffic	256,037	Locomotive expenses ...	248,765
Electric telegraph earnings ...	3,464	Carriage and wagon expenses	27,780
Sundries	8,939	Traffic expenses	166,215
		General charges	130,197
		Special and miscellaneous expenditure	16,650
Total ...	976,070	Total ...	927,170

With two exceptions the other principal public works are barracks, gaols, court-houses and customs-houses, but these two exceptions are of vast importance; the light-houses on the coasts and the extensive embankments thrown up for the protection of various tracts from inundation during the rains.

The first light-house was one on Savage Island in Akyab harbour which was built and lighted in 1842: a new lighting apparatus was supplied in 1870-71. The next was the Alguada Reef Light-house which was commenced in February 1861 after two years of preparation and was completed in April 1865 at a cost of little less than Rs. 1,000,000: it is a masonry building painted with alternate white and black bands, of the same type as the Skerry Vohr and the Bell Rock, one hundred and sixty feet from base to vane, carrying a cata-dioptric bright revolving light of the first order, one hundred and forty-four feet above high water mark, which attains its greatest brilliancy once a minute and is visible for twenty miles. Lat., 15° 42′ 5″ N.; Long., 94° 11′ 10″ E.

The Alguada was succeeded by a light-house on Double Island south of the entrance to the Maulmain mouth of the Salween, often called the Maulmain river, bearing S. 6° E. from Amherst from which it is twelve miles distant. The light, which is a fixed dioptric of the first order one hundred and sixty-four feet above high water mark and visible for nineteen miles, is borne by a rubble granite and masonry tower, seventy-five feet from base to vane, which was completed in December 1865 at a cost of Rs. 90,338. Lat., 15° 52′ 30″ N.; Long., 97° 34′ 36″ E.

Table Island Light-house, also called Cocos Island Light-house, is situated on the south-west end of Table Island, two miles from the Great Cocos Island, bearing S. 21° W. from Preparis, from which it is forty-six miles distant. The tower, which is ninety-one feet high, is of cast iron and is painted with alternate red and white bands: it supports a fixed dioptric light of the first order, one hundred and ninety-five feet above high water mark, which was first exhibited on the 15th February 1867. The original cost of the light-house was Rs. 117,816. Lat., 14° 12′ 30″ N.; Long., 93° 22′ 15″ E.

An iron pile light-house was soon afterwards completed on the Krishna Shoal and stood for some years, but unfortunately the fears expressed by some as to the dangers from scour were verified in 1877: during very stormy weather in August of that year the light-house and all in it disappeared. The light was seen burning brightly on the night of the 6th August, but on the 10th a vessel rounding the shoal could see neither light-house nor light; the whole structure had been swept away in the interval.

The China Bakir is off the mouth of the stream of the same name, known to Burmans as the To, supported by an iron screw-pile structure on the edge of the flats extending off the entrance to the river in two fathoms of water at springs. It exhibits a dioptric fixed and flashing light of the first order, the interval between two succeeding flashes being one minute. The light, which is seventy-eight feet above high water mark, is visible for fifteen miles between N.E. by E. ⅝ths E. through N.W. to S.W. by W. ⅝ths W. and was first lighted in its present position on the 1st March 1876. The cost of construction was Rs. 80,000, and the cost of shifting it seawards to where it now stands was Rs. 99,276. Lat., 16° 16′ 33″ N.; Long., 96° 11′ 9″ E.

The Eastern Grove is at the entrance of the Rangoon river on iron screw-piles situated close to high water mark on Grove point, bearing N. 36° E. from the China Bakir and one hundred and seventy-three miles distant. It exhibits a fixed white dioptric light of the third order, ninety-three feet above high water mark and visible for twelve miles, which was first lighted on the 14th September 1869. The original cost was Rs. 50,000. Lat., 16° 30′ 1″ N.; Long., 96° 22′ 47″ E.

The Oyster Reef Light-house, to render safe the western and northern approaches to Akyab, is on iron screw-piles at the southern edge of a very dangerous patch of shallow water about fourteen miles off the port of Akyab, from which it bears W. ¼ N., in four fathoms at low water springs. It exhibits a fixed white dioptric light of the second order, visible all round for fifteen miles, seventy-seven feet above high water mark, which was first lighted on the 1st May 1876. The original cost was Rs. 652,202. Lat., 20° 5′ N.; Long., 29° 39′ E.

Small embankments in Kyouk-hpyoo were made many years ago and have since been strengthened and extended, and others have been constructed in Tenasserim, from Ka-ma-thaing to Doon-won, to protect the Tha-htoon plain, and in Pegu, from near Pyeng-ma-goon to Myit-kyo on the Tsit-toung, to protect the Pegu plain. The former has been partially successful, the spill from the Kyoon-iek being kept out, but the latter appears to have raised the height to the north of it, whilst the embankment along the canal keeps in the water on the plain which was to be protected.

The great work of all is the so-called "Western Series Irrawaddy Embankments". This was commenced in a desultory manner as long ago as 1862-63 when the two northern sections, from near Akouk-toung to the Pa-ta-sheng immediately south of Kyan-kheng and from the south bank of the Pa-ta-sheng southwards towards the Tham-bha-ya-daing, were put in hand with the intention of embank-

ing the whole western side of the Irrawaddy as far south as Pan-ta-naw, closing the mouths both of affluents and of effluents. The portion in the extreme north from Akouk-toung nearly to Kyan-kheng is not a protective embankment but an embanked hill road. It very soon became doubtful whether closing the mouths of the streams which brought down the drainage from the hills and of the Tham-bha-ya-daing and Nga-won, which together form the head-waters of the Bassein river and the only direct line of communication between Bassein and the upper portions of the Irrawaddy delta, would not do more harm than good, and eventually the scheme became divided into three (geographically) distinct sections. The Kyan-kheng section extends along the bank of the Irrawaddy from north of Kyan-kheng to the Pa-ta-sheng, and turning westward continues for some distance along the bank of that stream when it turns again northward for about a mile to strike some rising ground; protects about five square miles. The Myan-oung section runs at first eastward along the Pa-ta-sheng to near its mouth and then southwards along the bank of the Irrawaddy to a little below Loo-daw-tsoo where it ends abruptly on the bank of the river a few miles above the mouth of the Nouk-mee; the extreme length is forty-four miles and the protected area about one hundred and twenty square miles. The Henzada embankment is a very much more extensive work. It runs from below Donabyoo northwards to the mouth of the Nga-won, whence it follows the course of that stream west and then south to about twenty-five miles below Nga-thaing-khyoung; its total length is one hundred and twenty-four miles and the area of country protected about nine hundred square miles, of which four hundred thousand acres are adapted for cultivation. All further progress has been stopped as it is believed by many competent authorities that one of the effects has been permanently to raise the level of the embanked rivers and another to throw a considerable amount of spill-water over the country on the left bank of the Irrawaddy and the right bank of the Nga-won and thus to injure large areas. There are at present no sufficient data published for an authoritative settlement of the question but much information has been collected and a full and complete report is being prepared. The latest published official returns show the total capital outlay, including simple interest, to have been, up to the end of 1878-79, Rs. 3,948,791, of which the earth-work cost Rs. 2,140,642. Omitting all consideration of any loss from damage done to land on the opposite banks, and to fisheries within the protected area from all means of ingress for fish from the main rivers being closed, from the channels which formerly carried off the surplus rain-water freely but which

now, from not being cleared by the annual rush from the influx, have partially silted up and become choked by weeds and rubbish and overgrown with brushwood so as to have become useless as channels of communication, and from higher land formerly under rice which does not now receive or retain sufficient for that kind of crop and which, in consequence, is not now worked, and including the revenue on all land behind the embankments brought under cultivation since they were made, all of which is assumed by the Public Works Department, and the assumption is a *most* liberal one, to have been so brought under cultivation by reason of the existence of those embankments, the accounts show a nett profit of Rs. 72,910 or 2·56 per cent. on the outlay after providing for interest on the capital outlay and for all the cost of maintenance.

Telegraphs*.

The first telegraph line constructed was from *Prome* to *Mye-dai*, and it was opened on the 20th May 1855. On the 3rd January 1856 another was opened between *Rangoon* and *Henzada* which crossed the Irrawaddy near Donabyoo, and a short time later its extension from *Henzada* across the Irrawaddy and *viâ Meng-gyee* to *Prome* was in working order. Two years afterwards, or in 1858, a line was run from *Mye-dai* to *Thayet-myo*, the Myedai office being closed. The line to *Calcutta* was completed in 1861; from *Prome* it passed to the west bank and over the Arakan hills to *Toung-goop* and Pa-deng; from this it was carried by a sub-marine cable to the island of Ramree and to *Kyouk-hpyoo* by land; thence also by land to the Akyab district, crossing by a cable to the Middle Borongo; and thence also by cable, across the Akyab harbour to *Akyab;* whence *viâ Ramoo* to *Chittagong* and on to *Calcutta.* In 1864, owing to the failure of the sea cables on the coast, the line *viâ* Ramree and the Borongo Island was abandoned and a land line was constructed *viâ* the An pass with offices at *An* and *Pabroo*, communication to India being re-opened on the 17th January 1865. In the meanwhile, in 1863, the line from *Henzada* to *Prome viâ Meng-gyee* was taken down and one on the west bank *viâ Myan-oung* and *Pa-doung* constructed instead. In 1873 the direct line from *Rangoon* to *Henzada* was done away with and one made in lieu thereof from *Rangoon* to *Prome* running along the Rangoon and Prome road. In 1873 a line was run from *Rangoon* to *Elephant Point* at the mouth of the Rangoon river and an extension from *Thayet-myo* to the frontier where it joins a line to Mandalay constructed by the Burmese Government. In 1874 a line was made from *Henzada* to *Bassein* and in 1877 this was carried on to *Diamond Island* off the mouth of Bassein river. In 1858

* Telegraph stations are in italics.

the line from *Rangoon* to *Toung-ngoo viâ Pegu* and *Shwe-gyeng* was opened, and in 1863 one from *Shwe-gyeng* to *Maulmain viâ Tsit-toung*. In 1862 the Pegu office was closed, but re-established in 1879, and in 1866 the establishment was removed from Tsit-toung. In 1873 the *Maulmain* and *Amherst* line was constructed; and in 1877 the Eastern Extension Company opened communication between *Elephant Point* and *Penang*.

As the Rangoon and Irrawaddy Valley (State) Railway was completed a line was run along it.

The department, in so far as the province is concerned, is controlled by two Superintendents,—one with his head-quarters at Akyab in charge of the Arakan and Chittagong division, and the other with his head-quarters in Rangoon in charge of the so-called "British Burma" division. Throughout the province there are 17·93 miles of cable and 941·77 miles of posts,—in all 959·90 miles.

The following tables shew the number of messages sent and received in 1873-74 and five years later :—

Number of messages inland and foreign (out of India) sent and received (excluding those on departmental service):—

Division.	1873-74.						1878-79.					
	Sent.				Received of all kinds.	Total.	Sent.				Received of all kinds.	Total.
	Inland.		Foreign.	Total.			Inland.		Foreign.	Total.		
	State.	Private.					State.	Private.				
Arakan * ...	325	5,612	526	6,463	7,475	13,938	735	8,711	353	9,799	11,767	21,566
British Burma	4,574	40,414	4,090	49,078	52,279	101,357	7,579	62,452	15,149	78,080	78,741	15,682
Total ...	4,899	46,026	4,616	55,541	59,754	115,295	8,314	71,163	15,502	87,879	90,508	178,387

Post office.

At first the postal arrangements were on a small scale. Post offices were opened at the head-quarter towns and the mails were carried up and down the Irrawaddy in Government steamers fortnightly from Rangoon, to and from Shwe-gyeng and Toung-ngoo by country boats, and from

* Chittagong is not included.

Calcutta to Akyab, Rangoon and Maulmain by the steamers of the British India Steam Navigation Company, which made two trips a month each way. There were also land lines between Eastern Bengal and Akyab, whence all letters for Kyouk-hpyoo and Sandoway were sent by boats through the numerous creeks along the coast, and from Maulmain to Shwe-gyeng, and a monthly line to Mergui and Tavoy by small steamers. A land line between Pegu and Arakan was tried but was abandoned as expensive and slow. Gradually communication was improved and at present mail steamers run from Calcutta to Rangoon and Maulmain once a week, every alternate steamer going on to the Straits Settlements, to Akyab and Rangoon twice a month, to Akyab and Kyouk-hpyoo twice a month, every alternate steamer going to Sandoway except during the S. W. monsoon when it would be dangerous to lie off the mouth of the Sandoway river which is not navigable by steamers, and once a month to every port in the province (except Sandoway during the S. W. monsoon) going on to the Straits. Small steamers run down from Maulmain to Tavoy and Mergui and back once a week and a steamer plies once a week each way between Rangoon and Maulmain. The mails to Toung-ngoo are carried by cart as far as the Tsit-toung and thence by boat, a long and tedious journey; steamers run twice a week between Rangoon and Bassein calling in at Ma-oo-beng, twice a week between Rangoon and the stations on the Irrawaddy, and are to run twice a week between Henzada and Bassein *viâ* the Tham-bha-ya-daing and the Nga-won, whilst the mails to and from Prome and Thayet-myo are carried daily by rail between Rangoon and Prome, the Thayet-myo mails being carried by a small steamer plying daily between Prome and Thayet-myo.

There are also district dâk lines in each district, over which the Imperial Post Office has no control, which are paid for from the cess on the land and fishery revenue. By one of these, from Thoon-tshay on the railway line to Henzada, letters are received and sent daily, and there is thus daily communication with Rangoon; parcels and packets are brought up by the steamers.

In 1862-63 the total number of letters received and despatched was 673,939 and of other articles, such as parcels, books and newspapers, &c., 177,287. In 1878-79 these had increased to 1,286,990 and 393,835 respectively.

Meteorology and health.

Possibly, if not probably, owing to the excessive mortality of the British troops during the first war the climate of British Burma has been considered as most unhealthy, whereas as a matter of fact it is far from being so. No doubt the climate of certain tracts is deadly

at certain seasons whilst that of others is always depressing: the mountain slopes covered with dense forest are fever-breeding in the extreme except from the middle of January to the end of April or beginning of May, and the climate of the delta of the Irrawaddy retards recovery from disease, but on the whole British Burma is one of the healthiest provinces in India. There "the dwellings of "the poorer classes are close, ill-ventilated, confined mud buildings: "in Burma they are raised from the ground and the plank walling "and bamboo floors allow free ingress and egress of air. There is "no lack of space and no overcrowding. Observation alone suffi-"ciently establishes the fact that no place in India can shew such "swarms of plump healthy-looking children or such vivacious "manly inhabitants as Burma."* The seasons follow each other with great regularity. The rains set in with more or less violent atmospheric disturbances about the middle of May and whilst the storms gradually diminish in force the downpour becomes steadier and more continuous and the prevalent wind is from the S. W. Towards the end of October the wind shifts round to N. E., there is much thunder and lightning and occasionally strong hurricanes with cyclones off the coast, and by the first week or so in November the rains have ceased, the wind veering round to the eastward cools the atmosphere, and the cool season sets in; this gradually passes, without any such violence as marks the commencement and close of the rains, into the hot season, having usually lasted till about the early part of February: the early mornings remain chilly for somewhat longer.

For many years meteorological observations were taken at the several hospitals but they were very inaccurate, except perhaps in Akyab where the observer worked directly under the Meteorological Reporter of Bengal. In 1876 three observatories properly supplied with instruments were opened in Rangoon, Akyab and Bassein, and in 1877 three more at Thayet-myo, Toung-ngoo and Mergui.

According to Mr. Theobald there are three main divisions or zones of climate as regards rain-fall, *viz.*, a littoral, a sub-littoral and an inland zone. The statistics of littoral rain-fall are afforded by the stations of Mergui, Kyouk-hpyoo and Akyab immediately on the sea. These exhibit a mean rain-fall (neglecting fractions) of 174 inches and a mean range of excess or variation among them of 21 inches. The sub-littoral rain-fall is shewn by the stations of Shwe-gyeng, Maulmain, Sandoway and Tavoy, and reaches to 194 inches with a range of difference of 51 inches. The inland rain-fall is shewn by the northern stations in the valley of the Irrawaddy and averages 45 inches with a mean range between

* Report on Sanitary Administration for 1874, page 5, para. 7.

the stations of observation of one inch only. The hottest period of the year is in May when the thermometer in the shade ranges from 90° to 110° (Sandoway and Shwe-gyeng), the inland stations being warmer than those on the coast and those above the head of the delta of the Irrawaddy being the hottest. In July the highest reading is much the same every where, rarely exceeding 95° any where. In December and January the range between the highest and the lowest readings varies from about 40° in Rangoon, where the thermometer falls to about 50°, to about 6° in Sandoway, where it falls to about 74° only.

The principal diseases are cholera, small-pox, fevers and bowel-complaints. Sporadic cases reported as cholera occur continually, but it is very doubtful if they really are cholera as the patients are never seen by any medical man and the Burmese and Kareng are utterly unable to diagnose a disease. Sometimes it makes its appearance in an epidemic form and sweeps through the country, whilst at others it seems to be confined to some particular locality. No statistics are immediately available earlier than for 1867: in that year deaths from cholera occurred in Rangoon, Thayet-myo, Prome, Myanoung (now called Henzada) and Bassein. The disease appeared in October in Thayet-myo, on the 29th October in Prome, brought down it would seem by a travelling party of Shan, from Prome it travelled south and appeared in Bassein in December. In 1870 it first appeared in the Pegu division on the 22nd January in Tsan-rwe east of the Irrawaddy and soon died out but re-appeared again in the same place in July and spread with amazing rapidity throughout the Myanoung (Henzada and Tharrawaddy) district. Early in the year there were a few deaths in Thayet-myo and in Prome, but in April, May and June no less than 1,002 persons were carried off by it in the south of the Prome district. In June it broke out in Akyab; on the 3rd June there was cholera in An and travelling southwards down the An river it branched off at its mouth into two sections,—one turning westward travelled through Ramree (Kyouk-hpyoo) until it died out in the beginning of August and the other spreading itself over the district of Sandoway followed the coast line and found its way into Bassein, where it soon lost its power of further propagation. In 1873 cholera appeared, almost simultaneously, early in January in Bassein and Henzada, Arakan being then quite free from it, and in the middle of the month it crossed the Irrawaddy to the eastward into the north of Rangoon; in February it attained its height in Rangoon and Henzada and spread northward to Prome: at about the same time it appeared in Tavoy, imported by a ship from Rangoon. Thayet-myo and Toungngoo were attacked in March and Bassein in April; Maulmain

suffered both at the beginning and at the end of the year. The cholera wave of this year ran into 1874 as far as August. In January 358 casualties occurred and there was, thenceforward, a gradual and almost regular decline till the end of July. Tenasserim suffered relatively nearly three times as much as Pegu and Arakan but slightly. In 1875 it was epidemic in Bassein only, where the disease commenced in December and continued till the end of March 1876; from thence it progressed into the neighbouring district of Henzada where it caused 401 deaths, nearly all between the 3rd and 17th June. Although it went up the Irrawaddy and appeared in January 1876 in Henzada, Kyan-kheng and Prome, it caused no mortality which could be called heavy or indicate any epidemic form of the disease, except in the town and district of Prome where it became concentrated in December, causing 564 deaths. It was epidemic in the town of Akyab in March when it caused 398 deaths and 502 deaths were reported from the district, the majority of them occurring in August, months after the disease had ceased entirely in the town. Kyouk-hpyoo was invaded in April but there were no deaths until July, and in August it travelled into Sandoway. Except a few deaths in the towns of Maulmain and Tavoy there were none in Tenasserim. It was in existence in Akyab, Kyouk-hpyoo and Prome when the year 1877 opened and was reported during that month from every district except Sandoway, Mergui, Thayet-myo, and Shwe-gyeng. In the Akyab district it was worst in January and in the town in April; in the neighbouring district of Kyouk-hpyoo it reached its maximum of intensity in July and then passed into Sandoway, which had hitherto been free, and increased rapidly during August diminishing afterwards. In Bassein it almost died out to re-appear with some violence in April, but in Thoon-khwa the deaths ran up in February to their greatest number; in Rangoon (town and district) and in Henzada district it continued fitfully—commencing and ending in May in the town of Henzada—until July when it was at its worst. In Prome it continued with some violence till in May (when it broke out in Thayet to the immediate north) it suddenly diminished to rise with sudden and intense rapidity in July, as it did, though not to such an extent, a month later in Thayet. In Amherst it was at its height in January and in Maulmain in February, whereas in Tavoy it gradually died out and the district was free from April to September when it re-appeared, causing a few deaths. There were no cases in Mergui till May, and from that month the disease spread somewhat rapidly till its maximum of intensity in October, November and December; it did not appear in the valley of the Tsit-toung till October. Almost everywhere it lasted until or nearly until

the end of the year. When 1878 opened Arakan alone was free and the disease was very bad in Thoon-khwa and Prome where it lasted with hardly any intermission throughout the year, abating slowly in both but increasing in the latter towards the end; in Rangoon it attained its maximum in July and in Bassein somewhat earlier, in April; in the Tharrawaddy district (which in former years was included in Henzada) it was worst in July and in Thayet in February. In Mergui and Tavoy it died out in February but in Amherst it increased in intensity till May, dying out in September to re-appear in December; in Shwe-gyeng it was worst in December and in Toung-ngoo in July.

The epidemic which commenced in 1876 and lasted through 1877 and 1878 was the severest of which there is any record, causing 17,713 deaths in the three years* of which 60·14 per cent. were amongst males, the percentage of males to the total population being 51·72.

Small-pox is endemic but has appeared in epidemic form and on several occasions has been imported by sea. Before the conquest of Arakan by the Burmese in 1774 this disease made great ravages amongst the poor but afterwards inoculation, introduced by the Arakanese captives, became extensively practised and is so still; to vaccination Burmans have a strong dislike which is only gradually being overcome. It is impossible to place a trained medical man within easy reach of every village, and some of those who are employed as unsalaried vaccinators use the written authority given to them as a means of spreading inoculation. During the six years ending with 1878 7,320 persons are shewn as having died from small-pox.

Of all countries in the world Burma was, and perhaps is still, supposed to be one of the most feverish, its inhabitants, native and alien, most liable to attacks of malarious fever with its concomitants of enlargement of the spleen and other organic derangements. By almost all Medical Officers, however, malarious fever is declared to be rare and an enlarged spleen is hardly ever found in a Burman.

The ordinary fevers are ephemeral or quotidian, intermittent and simple continued, and the cases are usually mild and easily amenable to treatment but this cannot always be had; where death results the disease has usually been contracted in the forests on low hills at the foot of high mountains or on spurs leading from mountain ranges (and these cases are often complicated with cerebral symptoms and are sometimes rapidly fatal) or the patient dies from the treatment, which developes secondary diseases, adopted

* 1876—3,678: 1877—7,276: 1878—6,759.

by the Burmese doctors who use violent purgatives, exclude air as much as possible, allow no nutritious food and object to cleanliness. Most of the deaths attributed to fever are due to these causes or to other diseases of which fever is a symptom.

Hospitals and charitable dispensaries where medicines are dispensed and the more serious cases admitted for treatment were established in all head-quarter towns as soon they were occupied by the British and the districts organized. The buildings were of the simplest and cheapest kinds and everything was done to diminish expense; thus for instance the hospital at Prome was a mat building inside the gaol walls and served for a prison hospital as well,—an arrangement conducive neither to the encouragement of applications for medical relief nor to the discipline of the prison. A considerable advance has now been made and though some of the hospitals are not particularly convenient or cheerful yet they are infinitely better than those in existence during the earlier period of our occupation; Rangoon and Maulmain possess large, handsome and commodious wooden buildings and new ones have been built in Akyab, in Shwe-gyeng and elsewhere. In 1878 there were twenty-one of these institutions costing the Government Rs. 91,181 and aided by endowments and subscriptions amounting to Rs. 26,825 at which 72,584 persons received relief.

Education.

Education was formerly almost entirely in the hands of the monks: almost, for there were lay schools kept by old men where boys were taught to read and write and where girls were sometimes admitted, but these schools were few and far between and were supplementary to the monastic schools. Booddhism as it exists in Burma is more than a State religion, it is a part and parcel of the State; every male Burman must enter a monastery and wear the yellow robe for some period of his life or he is not considered as human and before he can enter he must be instructed. Gradually, therefore, the monasteries became the schools of the country and places where education was given gratis. But these schools were very badly conducted; when a boy entered his teacher handed him a blackened board whereon were written the consonants and these had to be learned by heart and repeated over and over again at the top of the voice till the instructor was satisfied; a similar course was followed with the vowels and, when these had been learned, with the various sounds formed by the combinations of letters and thus the student slowly shaped his course through the apparently much complicated system of all the words of the language,—a process which took two or three years. At the same time he was learning to write. The utmost taught was reading and writing, and perhaps a little arithmetic but

very little and very rarely. When once the alphabet and its combinations had been mastered the lads began to read books or to be instructed in their contents, and these were invariably of a religious nature. Without being aware of it the pupils imbibed religious notions and became acquainted with some parts of the religious creed, particularly with what relates to Gaudama's last existence and the one preceding that. Undoubtedly there was higher education and some sought out learned teachers and studied philosophy or medicine or alchemy, but everywhere religion was all prevailing. This was the system as we found it and in so far as the monasteries are concerned this is to some extent the system now.

One of the first endeavours of the missionaries was to teach the young as well as to convert the full-grown. The Roman Catholics opened schools in Pegu during the fifteenth century and the American Baptist missionaries in the present century very soon after they arrived, whilst the same course was pursued by the missionaries sent out by the Society for the Propagation of the Gospel as soon as they set foot in the country.

Primary education was thus altogether in the hands of the ministers of religion. Sir A. Phayre in order to improve this education devised a scheme which is still being carried out. The missionaries had long received grants-in-aid, but the hpoongyee received nothing; the missionaries dealt chiefly with the children of converts, the hpoongyee with the mass of the population; to these latter, therefore, Sir A. Phayre turned his attention. His scheme was to improve the education given in the monasteries by distributing to such as would receive them elementary works on arithmetic, land-surveying, and geography, and by appointing teachers who would go round to the various monasteries and, with the permission of the monks, teach or aid in teaching those who wished to learn. The scheme was beset with dangers; the pride of the monks might be offended, their fears roused. But the measure was one of the deepest importance. "Upon it," wrote its author, "depends whether sound secular education shall be made to reach "the masses of the people by means of existing institutions having "all the authority with the people which belongs to time-honoured "establishments, or whether such education is to be offered through "some other medium which has not yet been selected and the "efficacy of which is untried." The dangers were clearly seen; Booddhism is one all over the land and any rash pushing of the measure in one monastery alone might break up the whole scheme by exciting universal distrust. In carrying out the details, therefore, Sir Arthur laid down that the plan should first be tried in the principal towns and should not be introduced elsewhere until it had

been tried there, for in such places the progress could readily be watched, the work be guided and objections met and overcome as soon as they appeared. The plan was started towards the end of 1866 and in four months the Director of Public Instruction who had been appointed to supervise the work had gained admittance to forty-five monasteries with one hundred and fifteen pupils, young monks, novitiants and lay scholars, receiving instruction from the new books and imparted by the new teachers. A commencement having been thus made the work languished; the scheme did not meet with universal approval, and in 1868 it was proposed to abolish it and to substitute the establishment of lay village schools; eventually it was decided that both systems should be worked side by side, and gradually both secular and monastic schools were brought upon the same footing. To those who asked for it teachers trained in Rangoon were appointed, and in those cases where it is allowed the school is inspected by the Deputy Inspector, the boys (and girls in lay schools) examined and prizes given. Circuit teachers to go from monastery to monastery were no longer wanted for the monks themselves were willing in very many cases to teach from our books and to have their pupils examined and in some to receive the aid of trained teachers. In his report for 1871-72 the Officiating Director writes of Sir A. Phayre's scheme having been abandoned, but this is not so; it has grown and developed as he expected it to grow and develope, though probably somewhat faster than he dared to hope. To aid in primary instruction town schools were established, conducted on better methods and imparting a better education than was to be found in the indigenous schools, but the experiment was not found altogether successful at first. They have gradually been improved and in nearly all, at the wish of the people, the study of English has been introduced. They now hold a place between the primary and the middle class schools. These schools are maintained in some cases by the municipalities, in others from the town funds, and again in others from the district cess fund, according to the class of population by whom they are attended; they rank as primary schools and are intended to act as feeders to the Government schools of the next higher grade as well as to serve as models for indigenous primary schools. The various missionary bodies, as already stated, had established schools in Pegu and in Tenasserim and had received aid from the State. This aid was subsequently withdrawn, but after some time payment of grants-in-aid was again sanctioned and made.

The system of primary education as it now exists may thus be described. In almost every village is a monastery where the children are taught to read and write and sometimes a little Pali

and a little arithmetic also are taught. In many towns and villages are lay schools where both boys and girls are taught reading and writing and some arithmetic. In all these Burmese is the language of instruction. Some are perfectly independent of State aid, others receive it in the shape of the appointment of trained masters or in payments. Any head of a school, monastic or lay, may apply to the Deputy Inspector to visit his school and examine the pupils; rewards are given for every child who passes a certain fixed standard of education, the value of the rewards increasing with the strictness of the standard; each standard comprises two subjects, language (Pali and Burmese) and figures, and a separate reward is given for passing in each subject; the master, if he will take it, receives a reward equal in value to that given to the pupils; the prizes to both master and pupil are in money or in kind at the choice of the recipient; no child can receive a prize for passing in a standard more than once. Once a year examinations are held at district head-quarters for primary vernacular scholarships, open to scholars under twelve years of age; the standard is to read with fluency and precision and to understand a passage from any standard Burmese classic of ordinary difficulty, to write down thirty lines dictated from a similar work, to work examples in the four simple and compound rules of arithmetic, to read with fluency the Pali texts of the Meng-ga-la-thoot or the Oung-khyeng-shit-ba. Each scholarship is tenable for two years in a Government middle class school; if it is a boarding school, the scholarship takes the form of gratuitous board, lodging and tuition, if a day school of Rs. 5 a month. Once a year an examination is held in each district for prizes, open to all candidates under twenty years of age who hold a departmental certificate of the 4th standard. Three prizes (Rs. 25, Rs. 15, Rs. 10) are given in each subject, Burmese, Pali and Arithmetic, and one (Rs. 50) for proficiency in all three.

The teaching in cess and town schools is given by trained masters, and the demand of the parents for English has been so strong that at Tha-htoon and Amherst in the Amherst district, at Mro-houng in Akyab, at Henzada, and at Rwa-toung in the Thayet district alone is education given through Burmese only.

The numerous missionary schools scattered over the country are in some cases independent of all aid, in others they receive a grant varying in amount, and some have received special grants for buildings or for the purchase of furniture. Besides these there are numerous missionary girls' schools, and girls' schools established in several places by the British Burma branch of the Ladies Association, more or less in connection with the S. P. G.

Many of the missionary schools not only give primary instruction but bring their pupils up to what is here called "superior education."

The means of giving a somewhat higher education than is obtainable in the primary schools consists in (*a*) the missionary schools just alluded to and (*b*) Government schools established in several towns in the province; these are are all Anglo-Vernacular: one was started in Kyouk-hpyoo in 1837, the next was opened in Prome in 1866, two followed in 1871 at Shwe-gyeng and Mergui, one in 1874 at Bassein, two in 1875 at Tavoy and Toung-ngoo and one in 1876 at Sandoway. These schools, situated at the head-quarter stations of districts, are called middle schools and are intended (in a three years' course of study) to carry pupils who have already passed through the primary school course up to the standard of entrance to a high school. Each of them has also a primary department.

High schools are intended (in a two years' course of study) to bring pupils to the matriculation standard of the Calcutta University. After matriculation the pupil will pass from school to college, but as yet very few pupils have matriculated and no college at present exists in the province. Three high schools are maintained by the State, at Rangoon, Maulmain and Akyab, each consisting of three departments,—High, Middle and Primary.

The general scheme of education may be summarized thus. The native lay and monastic schools are encouraged and developed partly by giving trained assistant masters, partly by payments by results; cess and town schools giving a somewhat superior education and almost everywhere partly through Burmese and partly through English have been established in the larger towns and villages; these centres of primary education are affiliated to the middle class schools, partly established by the State, by assimilating their curricula, awarding scholarships and other expedients; and lastly higher education is provided for those who have fitted themselves for it by passing through the middle class course. The different classes of schools established by the State are kept distinct and each class has its own fixed course of study. No pupil is admitted into a Government school of any grade who is not qualified to begin the course prescribed for that grade. According to the latest published statistics, those for 1878-79, there were altogether 3,098 schools with 76,874 scholars on the books of the department.* Of these schools twenty-nine were Government schools with 1,758 pupils, thirty-

* Total male population under twelve 582,001, total female population under twelve 611,920. There is a large number of schools—lay, monastic and missionary—receiving no aid from the State and therefore not borne on the books.

eight missionary with 3,635 pupils, and 3,031 other schools with 71,481 pupils. The department is controlled by a Director with two Inspectors and seven Deputy Inspectors. The actual expenditure was Rs. 413,835, of which Rs. 307,196 was defrayed by the State and the rest from fees, fines, &c.

The whole scheme of education has just been revised, and in future the progress of all schools will be tested by an annual provincial examination conducted by a special Departmental Board of Examiners. The provincial examinations will be called the lower primary school examination, the upper primary school examination and the middle school examination; and the Government scholarships will be awarded according to the results of these examinations. Candidates for matriculation are examined by the University. The following are the standards prescribed for each examination :—

(i). The *Lower Primary School* examination, qualifying for admission to the upper division of a primary school :—*English* (optional) : to read with some fluency from an easy monosyllabic reader; to point out and translate into Burmese easy nouns and verbs from the same : *Dictation :* seven or eight lines from the samo, five errors only allowed : *Second Language :* to read at sight with facility a moderately easy vernacular book; to write to dictation from the same : *Arithmetic :* to work sums in the four rules, simple and compound, including easy miscellaneous questions : *Geography :* to name and point out in the map the chief physical features and towns of Burma and the principal continents and oceans in the world.

(ii). The *Upper Primary School* examination, qualifying for admission to a middle school. *English* (optional, except for Europeans and Eurasians) : to read at sight with fluency and intelligence any simple passage of ordinary difficulty in English; to write similar passages from dictation; Elementary grammar : *Second Language* (optional for Europeans and Eurasians) : to read at sight with fluency and intelligence a passage of ordinary difficulty from a vernacular book or newspaper; to write to dictation from the same : *Arithmetic :* four simple and compound rules thoroughly, vulgar fractions (four rules), bills of parcels and simple practice : *Geography :* to have a fair knowledge of the chief physical features and political divisions of the World : one of the following subjects (the selection being optional) :—

(*a*) *History.*—History of Burma.

(*b*) *Drawing.*—To draw with fair accuracy from a given object or copy.

(*c*) *Physiology.*—" The house I live in."

(*d*) *Pali.*—The 3rd standard for indigenous schools.

(iii). The *Middle School Examination*, qualifying for admission to a high school. *English:* to read with fluency and intelligence any simple passage in a newspaper or reader of ordinary difficulty; to parse and explain the meaning of the passage read; fairly correct dictation from the same; easy composition and letter-writing; easy translation into a second language: *Second language:* to read with fluency and intelligence any prescribed text-book of ordinary difficulty; to parse sentences from the same; dictation from the same; composition on any familiar subject; easy translation into English: *Arithmetic:* simple and compound rules; vulgar and decimal fractions; simple and compound proportion; simple and compound interest: *Algebra:* the four first rules: *Geometry:* Euclid's definitions and twenty-six propositions of the I. Book; Todhunter's "Mensuration for Beginners," sections I. to III: *Geography:* a knowledge of the physical geography and an accurate acquaintance with the map of Burma, India, and Asia, and a good general knowledge of that of the World: *History:* Outlines of the history of Burma, of India and of England.

All private schools receiving grants-in-aid from Government will submit their pupils to the test of these examinations upon the results of which the amount of the grants will depend.

This system will come into operation in 1880 when it will be possible to form a more accurate estimate than heretofore of the state of education in the province.

Political relations.

The political relations of the British with the Burmese Government up to the close of the second Burmese war have already been related in a previous chapter. In 1854 the King of Burma sent an embassy to Calcutta, and in the following year Major (now Sir Arthur) Phayre was deputed to the capital to negotiate a treaty. He was, however, unsuccessful as the Burman ruler declined to do anything which in any way recognized the conquest and annexation of Pegu. In the same year the British Government entered into a treaty with that of Siam. In 1862 Lieutenant-Colonel Phayre again visited Mandalay, and on this occasion was more successful in his endeavours to get the Burmese Government to agree to a commercial treaty: by this each Government undertook to protect each other's subjects residing in or travelling in its dominions *as it did its own*; goods landed in the province and declared for export to Upper Burma were, provided bulk was not broken, to be charged one per cent. *ad valorem* in lieu of all other duty; and the Burmese Government undertook to abolish its customs duties after a year or two, *if so inclined* and provided that the British Government ceased to collect dues on the frontier within

one year from the date of signing the treaty. The English Government abolished the duties but the Burmese Government did not follow suit. In 1863 a British officer was deputed to reside permanently at the capital as the British representative.

In 1866 a rebellion broke out in Mandalay headed by two sons of the King—the Myeng-goon and the Myeng-goon-daing princes—who murdered their uncle, the Heir-apparent, but were finally driven to seek refuge in British territory, where they were placed under slight restraint. Shortly afterwards the Myeng-goon escaped and made his way into the Shan and Kareng-nee States in the north-east and fomented disaffection there. His brother was then sent as a State prisoner to the Andaman Islands. A few months later the Myeng-goon made his way secretly to Rangoon, swearing in men to his service in various parts of the country. He was at last caught in 1867 in a hut near Rangoon and was sent to join his brother, and subsequently both were transferred to Chunar. In the meanwhile Lieutenant-Colonel Phayre had paid another visit to Mandalay in order to induce the King of Burma to give up all monopolies; this the King positively refused to do, and the British Envoy left the capital without negotiating any treaty; thereupon the Viceroy declared that he would re-impose the frontier dues as the Burmese had not abolished those levied by them: this threat was not carried out as the King issued a proclamation reducing the duties to five per cent. *ad valorem*, and abolishing for ten years all monopolies, except of earth-oil, precious stones and timber, and informed the British Agent that he was prepared to reconsider the question of a new treaty. Sir A. Phayre had left Burma and his successor Colonel (now Lieut.-General) Fytche was deputed to Mandalay and negotiated a new engagement. By this the monopolies of earth-oil, timber and precious stones were agreed to; the duty to be levied by the Burmese was fixed for ten years at five per cent. *ad valorem;* and the English undertook not to re-impose customs dues as long as this rate was not exceeded. The British Agent was authorized to decide civil suits between persons who registered themselves as British subjects and to sit with a Burmese Judge for the disposal of suits between British and Burmese subjects; the British Government was authorized to appoint Agents to reside at any station in Burma where customs dues were levied, and a similar power was given to the Burmese Government as regards stations in British Burma; the free export of gold and silver from Upper Burma was, for the first time, allowed, and in consideration for this the Burmese Government was permitted to purchase arms and munitions of war subject to the consent and approval in each case of the Chief Commissioner; and, lastly, the

extradition of persons charged with murder, robbery, gang-robbery or theft, was agreed to.

The entire cessation of trade between Burma and the western provinces of China, due to the Panthay rebellion, led to the despatch of a British mission to Yunan in 1867, which after overcoming considerable difficulties reached Momien (or Teng-yue-chow as it is called by the Chinese) and entered into friendly intercourse with the Panthay Governor (the Ta-tsa-koon), but owing to the disturbed state of the country it was unable to reach Tali where the so-called Panthay King held his court.

In 1869 an Assistant Political Agent was appointed at Bha-maw and in the same year arrangements were made with some of the independent chiefs of Kareng-nee for facilitating trade.

In 1871 the King shewed a great desire to increase trade; he added to his fleet of river steamers and started manufactories of various kinds, and at the same time sought to re-introduce abandoned monopolies by obtaining from British merchants guarantees that they would sell to him only; but the practical result was a heavy loss and he gave up his scheme. In this year he was allowed to send down a new *htee* or crown for the Shwe-dagon pagoda of the estimated value of Rs. 620,000.

In 1872 the King sent an embassy to England to endeavour to enter into direct communication with the British Government, but in this he was unsuccessful, and towards the close of the year letters from the Queen, the Prime Minister, and the Viceroy were sent to him and received with much ceremony.

The Panthay rebellion in Yunan was still going on, and in this year the rebel King or leader, Suleiman, sent a mission to Rangoon with instructions to proceed to England, whither it proceeded *viâ* Calcutta. At about the same time an Italian embassy proceeded to Mandalay with the ratification of a treaty which had been negotiated in 1871 by Commodore Racchia, of the Italian Navy.

In 1873 another letter from the Queen and Her Majesty's portrait were sent to the King, and his court was visited by a French embassy under the Comte de Rochechouart, who contemplated obtaining a ratification of a treaty negotiated by a Burmese embassy which had visited several of the European States.

In 1874 three Burman embassies passed through Rangoon; one to Persia which was not then reciprocated, one to France to obtain a ratification of the amended treaty made the previous year by the Comte de Rochechouart, and another to India which, after being received by the Viceroy, visited the Booddhist shrines at Gaya. In this year complications arose with reference to Kareng-nee or the "Country of the Red Kareng" on our north-eastern border.

This tract is divided into two, called respectively Western and Eastern Kareng-nee. Originally the whole tribe was under one chief whose power would seem to have accrued from his position as religious representative of the people in Nat worship; his revenue depending on the voluntary contributions of his subjects. For the last hundred years or so the country has been divided into five distinct principalities, most of them being ruled by the descendants of two Burmese adventurers who obtained considerable power under Moung Rai, the last absolute chief, and at his death asserted their independence. The Chief of Western Kareng-nee is the descendant of the old rulers and his territory, though not so extensive as the eastern tract, is of greater value and importance and extends for some distance southwards into British territory like a wedge. In 1867 the Burman Government employed our friendly offices with the chief and in 1870 officially guaranteed a strict policy of non-intervention. Towards the end of 1873, however, they claimed the sovereignty of the whole country, whilst the Chief of Western Kareng-nee renewed his old entreaty that we should govern and protect his country.

The Panthay rebellion having been suppressed and order restored by the Chinese generals, another effort was made in 1875 to traverse the country and if possible to reach the Pacific. A mission under Colonel Horace A. Browne was sent up to Bha-maw, where it was met by Mr. Margary who had come up through China from Pekin. After a delay of some days the mission started for Yunan and Mr. Margary went ahead to Man-waing, where he had been well received on his journey westwards, to make arrangements. There he was treacherously murdered, and on the following morning the main party was attacked by an armed rabble and was driven back to Bha-maw. Shortly afterwards the Chinese Governor, who was responsible for these acts, was well received at Mandalay, and in consequence of this and of the state of affairs in connection with Kareng-nee Sir Douglas Forsyth was sent on a mission to the court of Burma. He received satisfactory explanations regarding the reception of the Chinese General and in less than a fortnight was able to return with an agreement securing Western Kareng-nee from all aggression; a few months later the northern boundary of the newly protected State was demarcated by British officers, and the temporary excitement which had arisen and had seriously interfered with trade with Upper Burma subsided.

In 1876 and 1877 a Burmese embassy visited nearly every court in Europe and negotiated a commercial treaty with Spain. After some show of reluctance the Burman Government authorized the passage of a guard of British soldiers through its territory to

Man-waing a town on the borders of China about 56 miles east of Bha-maw, to act as an escort to a British mission which had been sent from Pekin to investigate the causes of, and occurrences at, Mr. Margary's murder in 1875.

The treaty of 1867 would have expired in 1877 if the Burmese Government had given three months' notice and as its power to give such notice at any time and then to enhance the rates of duty appeared to be an evil an endeavour was made to secure a permanent renewal of the treaty with some modifications. But the Burmese Government in return for what was asked of it made demands which could not reasonably be conceded, and after long discussion the negotiations were allowed to drop. During this year an Envoy from the Shah of Persia passed through the province on his way to Mandalay.

The British power was for many years in contact with the Siamese all along the eastern border of Tenasserim before any definite agreement was come to. The exact boundary was unknown and the Siamese Government claimed Victoria island off the mouth of the Pak-chan in the south, whilst it was unable to control its feudatory, the Chief of Zeng-mai, in the north, where difficulties arose from both Shan and Kareng-nee chieftains claiming the same forest tracts and disturbing our foresters who worked there.

In 1867-68 a joint commission settled the boundary, giving Victoria island to the English. In 1871 an Envoy was sent to Zeng-mai with a view of promoting friendly relations and providing better protection for the foresters but, as already related on page 492, the results were small, and as, notwithstanding the Treaty with Siam, matters did not much improve, another mission was sent to Zeng-mai in the early part of 1879 the result of which is not yet known publicly.

The King of Burma, Meng-doon Meng, died in 1878 and was succeeded by one of his sons, the prince of Thee-baw. His reign was inaugurated with terrible massacres and the relations between the Burman and Indian governments gradually became more and more strained. On the death of the Resident, Mr. Shaw, in 1879, Colonel Horace A. Browne was sent to replace him as a temporary measure, but shortly afterwards he was recalled and towards the end of that year diplomatic relations were broken off and the British mission left Mandalay.

CHAPTER XVI.

MAMMALS.

For our knowledge, admittedly incomplete, of the mammalian fauna of this province we are mainly indebted to Sir Arthur Phayre, Major Berdmore, Dr. Mason, Colonel Tickell, Mr. Theobald, and Mr. Blyth, though others have more or less aided by collecting specimens and forwarding them for identification to Mr. Blyth or to Mr. Theobald, the latter of whom has more especially worked at the Cheiroptera and Muridæ. Shortly before his death Mr. Blyth prepared a catalogue of the Mammals of Burma, which was subsequently published by the Bengal Asiatic Society, and on this the following descriptive list is based. For more detailed descriptions where none or but slight ones are given in Mr. Blyth's paper reference has been made to Jerdon's Mammals of India and to the Proceedings and Journals of the Bengal Asiatic Society, and any new species that have been, to my knowledge, described since Mr. Blyth's paper was published have been added.

Sub-kingdom.—VERTEBRATA.

Class.—MAMMALIA.

Order.—PRIMATES.

Sub-order.—*CHEIROPODA.*

Tribe.—**CATARRHINI.**

Family.—**Hylobattidæ.**

Gibbons.

The Gibbons, or Long-armed Apes, have the thumbs of both hands and feet separated from the other digits to the base of the metacarpal and metatarsal bones respectively; occasionally the second and third digits are connected. When walking, which they appear to dislike,* the sole of the foot is applied flat to the ground, the pollux is distinctly separated from the other digits, and the hands and arms are raised and swung, as if to balance the animal, with a sweeping circular motion. They are rarely seen alone, though sometimes an old male will stray away from the herd and sit howling amongst the topmost branches of some high

* The dislike to walking is doubted by Dr. J. Anderson, Curator of the Calcutta Museum, who has had two individuals under observation for some time.

tree. They usually associate in societies of from fifty to a hundred individuals or more, and from early dawn till about 9 or 10 A. M. the forests in the hilly parts of the Arakan and Tenasserim divisions resound with their cries (the sound has not inaptly been likened to that of a pack of fox-hounds giving tongue); after this hour they are engaged in feeding and become silent. They frequent the highest trees, using their arms only, or almost only, and swinging from branch to branch and from tree to tree with surprizing agility. As a rule they are gentle, peaceable and very timid, but occasionally they become vicious and are even said to have attacked human beings.

There are two representatives of the family found in British Burma and both are known to the Burmese by the same name, *viz.;* Myouk-lwai-gyaw (Too-poung in Arakan). Both vary in colour considerably, from black to dirty white and pale fulvescent.

1. *Hylobates hoolook*, HARLAN.—The White-browed Gibbon.

A broad white frontal band, either continuous or divided in the middle, is constant. Males constantly black. Females vary in colour. This is the Indian species and it has not been found east of the Irrawaddy.

2. *H. lar*, LINN.—The White-handed Gibbon.

The hands and feet are white (less brightly so in some) and a white ring encircles the visage. Both males and females vary in colour. It is a Malayan species and is found in the forests on the hills in Tenasserim.

Family.—**Papionidæ.**

Monkey-like baboons.

Monkeys with simple stomach and provided with cheek pouches.

3. *Inuus leoninus*, BLYTH.—The Long-haired Pig-tail Monkey (Myouk-mai, *Burm.;*—Myouk-la-haing, *Arakan*).

A monkey with exceedingly long hair on the fore-quarters, shorter on the lower and scanty on the under parts. Occasionally the short tail has a rufous tip. The females and the young are gentle and docile but the adult males are strong and fierce. It is not common. It has been found in Northern Arakan and it extends southwards connecting the Malayan species with the Rhesus monkeys.

4. *Macacus cynomolgus*, LINN.—The Crab-eating Monkey (Myouk-ta-nga, *Burm.*).

No trace of crest on the vertex; face blackish with strongly contrasting white eyelids. Found throughout the province on

the sea-shore and on the banks of inland streams. Feeds on crabs and shell-fish and eats fruits.

Family.—**Colobidæ.**

Long-tailed Monkeys without cheek pouches; stomach sacculated; callosities present. Subsist to a considerable extent on green foliage.

5. *Presbytes cristatus*, RAFFLES.—The Silvery-leaf Monkey (Myouk-myek-kweng-hpyoo, *Burm.*;—Myouk-hgnyo, *Arakan*).

Of a somewhat glistening or silvery dark ash colour with white under parts; a conspicuous crest on the vertex and long whisker-tufts which conceal the ears on a front view; face leaden black, contrasting with the pinkish flesh colour on the mouth and lips extending to the lining of the nostrils, besides which a large semi-circular mark of a paler and more livid tint occupies the inner half of each orbit. This is the *Simia phayrei* of Blyth in J. A. S., B., Vol. XV., p. 733, and the *P. phayrei* of Mason. It has been found in Arakan and far south beyond British Burma but does not appear to have been found in Pegu nor has its existence in Tenasserim been shewn.

6. *P. albocinereus*, SCHINZ.

Is common on the banks of the Tapeng in the north of Burma and also in Malacca and has been found in Siam, and probably, therefore, it occurs in the province and might be found in Tenasserim. One distinguishing character of it is that it has two radiating lateral centres of hair upon the crown, the hair meeting and being pressed up between them. The small young resemble the adults, excepting that their colours are more strongly contrasted.

7. *P. obscurus*, REID.—The Dusky-leaf Monkey.

The adults are blackish, with the hair upon the nape lengthened and conspicuously whitish. The newly born young are of a vivid golden ferruginous colour, which soon changes to dusky ash and is continued latest upon the tip of the tail. It is found in the Malayan peninsula and extends northwards into Tenasserim. It lives upon fruits and is especially fond of that of the *Dillenia*.

8. *P. chrysogaster*, LICHT.

The mature animal has the upper parts, limbs, and tail blackish, the hair ferruginous on the basal half; slight band crossing the forehead; cheeks, front, throat and front of neck, sullied white; rest of the lower parts deep and bright ferruginous, which tinges the inner side of the limbs; face colourless or pinkish-white. Young wholly pale ferruginous, somewhat darker on the hands and feet. There is a slight compressed crest on the vertex, but no distinct whisker-tufts or lengthened hair on the nape. It has been found

in Tenasserim, and Mr. Blyth, than whom there could be few more competent authorities, was of opinion that it might be found in Arakan.

Sub-order.—*LEMURIA.*

Family.—**Nycticebidæ.**

Lower jaw permanently divided in the middle.

9. *Nycticebus tardigradus*, F. CUV.—Slow Loris (Myouk-moung-ma, *Burm.*).

Dark-ashy grey, with a darker band down the middle of the back; beneath, lighter grey; forehead in some dark, with a narrow white stripe between the eyes, disappearing above them; ears and round the eye, dark; tail very short. It is widely diffused but not abundant, and from its nocturnal habits not much observed: in the day-time it sleeps in holes of trees coming out at night to feed.

Sub-order.—*PLEUROPTERA.*

Family.—**Galæopithecidæ.**

10. *Galæopithecus volans*, LINN.—Flying Lemur (Myouk-hloung-pyan, *Burm.*).

This is the only representative of the family in this province. It has been found in Mergui and, according to Mr. Dunn, in Northern Arakan. I myself saw one, in 1876, in the valley of the Bheeleng, six or seven miles below the town of that name. The fur is soft and short, of an olive brown colour with irregular whitish patches. On the back and extending over the limbs and membrane the fur is short but exquisitely soft. The tail is prehensile. The brain is small and the animal has a strong vitality. The young, of which there is generally one at a birth, are born blind. The food is composed principally of leaves and fruit, and the stomach is voluminous and the intestines much convoluted. It usually hangs from trees by its hands and feet and, when ascending, it proceeds by short runs. Extending from the fore to the hind legs are two strong, exteriorly fur-covered, membranes, one on each side, which act somewhat as a parachute when, suddenly leaving a tree where it was holding on at a height of some forty feet, it glides through the air in a slanting, downward direction to strike another tree at a spot a few feet from the ground. Its habits are crepuscular and nocturnal; its cry a kind of harsh croak.

Order.—CHIROPTERA.

Tribe.—**HARPYDIA.**

Frugiverous bats which do not hybernate and are peculiar to warm climates. Five species are known in this province.

Family.—**Pteropodidæ.**

11. *Pteropus medius*, TEMM.—The Flying Fox (Leng-tshwai *vel* Leng-wek, *Burm.*).

It is found throughout the province but the colour varies: the back is more or less pale and the lower parts more or less black or wholly fulvous; in the south of Tenasserim it is more deeply coloured. The ears are naked, except at the posterior bases, and are long with acutely pointed tips. The nostrils project. During the day these bats hang, in large numbers together, attached by the feet to branches of high trees with their wings closed round them; as soon as it gets dusk the colony starts off in search of food (first one, then two or three, then a dozen, and so on in increasing numbers till the laggards have to follow almost alone) travelling sometimes long distances: at grey dawn the colony returns to its resting-place. In flight the wings have a slow winnowing motion.

12. *Cynonycteris amplexicaudata*, GEOFF.

The head is long and triangular. The upper lip has a wide groove in front with smooth, not elevated, margins; the ears are moderate, triangular, rounded at the tip, and posteriorly naked, except at their bases. It has been found in Tenasserim and probably exists in Pegu and possibly in Arakan.

13. *Eonycteris spelæa*, DOBSON.

The head is long, the muzzle narrow, the nostrils with an intervening emargination which passes down to the lip. The tongue is very long and protrusile. There is a pointed wing-membrane attached to the back of the foot. The ears are conical with roundish tips. The index finger has two phalanges and is without any trace of a claw. The body is clothed with very short and thinly spread fur of a uniform dark brown colour. It is found throughout Tenasserim in the numerous caves in the rocks. From these caves the dung, which in some covers the floor in vast heaps, is carried away to be used as manure and in the north one of the Kareng tribes uses it in the manufacture of the saltpetre with which their gunpowder is made.

14. *Macroglossus minimus*, TEMM.

This is the smallest species of frugiverous bat and is widely distributed, though hitherto it has been found in British Burma only in the valley of the Tsit-toung.

15. *Cynopterus marginatus*, BUCH. HAM.

Very generally distributed. General colour fulvous olivaceous, paler beneath and with an ashy tinge; ears with a narrow margin of white. In adult females the neck and sides are sometimes tinged with a deep ferruginous colour, which Mr. G. E. Dobson

supposes to be a secondary sexual character. Like the larger *Pteropus medius* it travels long distances at night in search of food, but its flight is different the wings working rapidly. It is a most voracious feeder; of the guava it swallows the juice only, ejecting the pulp.

Tribe.—**SPECTRA.**

Chiefly insectiverous bats, which hybernate when the temperature is low.

Sub-tribe.—PACHYURA.

Thick-tailed Bats, the tail more or less prehensile and sheathing within the interfemoral membrane; the wings long and narrow and contracting with a double flexure.

Family.—**Noctilionidæ.**

Thick-tailed Bats: no facial membrane; head short and obtuse; lips large; wings long. In *Taphozous* the tail withdraws entirely within the membrane and an enormous amount of fat collects near the tail as the hybernating season approaches.

16. *Taphozous theobaldi*, DOBSON.

Gular sac absent; ears comparatively large, the inner margin bordered by a row of small papules; radio-metacarpal pouch well developed; wings and interfemoral membranes on the upper surface completely naked; upper incisors short. According to Mason this also is a cave inhabitant, and it has not been discovered elsewhere than in Tenasserim where all the lime-stone caves are.

17. *T. longimanus*, HARDW.—Long-armed bat (Leng-no, *Burm.*).

Gular sac and radio-metacarpal pouch present; nostril not closed but having a valvular kidney-shaped orifice and tremulous; upper incisors long and weak and, consequently, liable to damage and thus not found in some specimens. In colour it is pale fulvescent when young, becoming gradually darker with age, the old being somewhat of a deep black but with base of white fur.

18. *T. melanopogon*, TEMM.—Black-bearded bat.

Gular sac absent; radio-metacarpal pouch present; upper incisors very short. The males, which are brown or reddish brown above and brownish white beneath, have a beard of long black hair dependent from the chin and throat: the females are brownish mouse-grey above, lighter beneath. It is found in the province generally.

Sub-tribe.—LEPTURA.

Bats with ample wings which contract with a double flexure; the tail (when present) slender and fixed in the interfemoral membrane; fat collects as in *Taphozous*.

Family.—**Megadermatidæ.**

Nose leaf complicated. Index finger of two joints.

19. *Rhinopoma hardwickii*, GRAY.—Long-nosed Leaf-bat.

Muzzle long, thick, truncated and surmounted by a small leaf; forehead concave; fur soft and very fine; dull brown throughout; face, rump and part of the abdominal region naked. Frequents caves, ruins, clefts in rocks, &c. Found throughout the province.

20. *Megaderma spasma*, LINN.—Vampire bat.

A highly predatory bat which is found in Tenasserim and in the Malayan countries generally, as well as in Ceylon. The nose leaf is complicated; the index finger with two joints; ears very large, connate at the base; no tail.

Family.—**Rhinolophidæ.**

Nose leaf complicated, membranous. Index finger of a single joint.

Sub-family.—*Rhinolophina.*

21. *Rhinolophus cœlophyllus*, PETERS.

This bat has been found in the valley of the Salween in Tenasserim.

22. *R. luctus*, TEMM.—Large Leaf-bat.

Fur long, dense, soft and lax, slightly curled or woolly, black with a silvery grizzle, or greyish black, or rich chestnut brown. Commences its flight early in the evening and flies low in search of beetles and other insects. Usually dwells in pairs, but in large caves several pairs may be found, each pair living separately. During the colder portion of the year they hybernate.

23. *R. affinis*, HORSFIELD.—Allied Leaf-bat.

Like *R. luctus* this bat starts early and flies very low and slow. Ears large, pointed, emarginate externally; upper leaf triangular; varies much in colour, above bright rufous or ferruginous brown or brown, paler beneath; two upper incisors; six molars.

24. *R. rouxi*, TEMM.—Rugous Leaf-bat.

Greatly resembles the preceding but differs in having no upper incisors, only five lower molars and a shorter tail; colour above smoky brown in some, red brown in some, and golden rufous in others; beneath paler.

25. *R. pusillus*, TEMM.

Burma generally.

Sub-family.—*Phyllorhinina.*

26. *Phyllorhina diadema*, GEOFF.—Large Horse-shoe bat.

Nasal leaf quadrate; lips with a triple fold of skin on each side; of an uniform light brown colour with maroon tips to the hairs of the upper parts; membranes black.

27. *P. masoni*, DOBSON.

The concave front surface of the base of the transverse nose-leaf is divided into two cells only by a single central longitudinal fold. The upper margin of the transverse nose-leaf and the thickened cordiform ridge behind the nasal orifices develop acute projections in the centre of their front surfaces. The horse-shoe-shaped membrane is simple, with three vertical processes of membrane on each side. Found near Maulmain.

28. *P. larvata*, HORSFIELD.

The fur of these bats is of a golden yellow with reddish-brown tips to the hairs, whilst Indian specimens are of a dark slate colour. Found at Prome and Maulmain.

29. *P. speoris*, SCHREB.—Indian Horse-shoe bat.

Ears large, erect, acuminate, rounded at the base; muzzle short; interfemoral membrane narrow, square, enclosing the tail, the half of the last joint alone free; body short and thick and of variable colour, sometimes light mouse colour, paler beneath, sometimes fulvous brown, at other times bright rufoferruginous or golden fulvous. Inhabits old buildings, wells, &c.

30. *P. bicolor*, TEMM.

A widely distributed species. The males are invariably white with brownish or purplish-black tips to the hairs; the pregnant females are of a splendidly bright ferruginous colour, the hair of the upper parts slightly tipped with a darker shade. Found in Tenasserim.

31. *Asellia stoliczkana*, DOBSON.

Ears acutely pointed, outer edge doubly marginate immediately below the tip; nose-leaf large; transverse portion erect; upper part of crest tri-acuminate, in form like an isosceles triangle with an obtuse vertical angle having its apex divided into three points by two narrow incisions perpendicular to the base; fur pure white with purplish-brown tips; beneath dirty white. Found in Tenasserim ?.

Family.—Vespertilionidæ.

The ordinary bats. No facial leaf; the tail long and included in the membrane; wings wide; a single phalanx in the index finger.

32. *Nycticejus temminckii*, HORSFIELD.—Common Yellow bat.

Upper parts of a very rich tawny or golden-brown colour having a slightly greenish cast; the lower parts fine yellow, more or less deep, and not unfrequently tinged with fulvous. Found in Arakan and generally in Burma, except perhaps far to the south-

ward; yet it is found in Canton, where it is common in April and May. *N. luteus* and *N. castaneus* are given by Blyth, but are believed by Mr. Dobson to be synonyms of *N. temminckii*. "No difference whatever" he observes "except size, can be found on comparing recent specimens and skeletons;" and "*N. luteus* is the perfectly adult *N. temminckii*." *N. castaneus* differs from *N. temminckii* only in having the under parts nearly as deeply coloured as the upper. It is a Malayan race or species, but has been found at Dacca, and is alluded to by Jerdon as inhabiting Burma.

33. *N. tickelli*, BLYTH.—Beautiful bat.

Fur moderately long and soft and straight or a little wavy, of a pale fulvescent or whitish-fulvous colour, more or less tinged with maroon or vinous on the back.

34. *Vesperugo blanfordi*, DOBSON.

Head very flat and broad; nostrils opening widely apart by semi-lunate apertures of which the margins are level with the extremity of the muzzle; ears short, triangular in outline and with broadly rounded off tips; upper half of the outer margin of the ear-conch straight, then convex, slightly concave opposite the base of the tragus, terminating abruptly in a deep lobe closer to the angle of the mouth than to the tragus; tragus narrowest opposite the base of its inner margin, expanded above and curved inwards. The fur is dark reddish-brown above and paler beneath. Found in Tenasserim.

35. *V. imbricatus*, HORSFIELD.

A small and rapidly-flying bat which is very generally diffused and is the representative of the *Pipistrelle* of Europe. Mr. Dobson believes it to be the adult of *N. coromandelicus* of Cuvier.

36. *Tylonycteris pachypus*, TEMM.

A small bat with two pairs of upper incisors, of a pale fulvous colour throughout, with black membranes. Found in Tenasserim.

37. *Kerivoula picta*, PALLAS.—The Plantain, Painted, or Orange bat.

A small and beautifully coloured bat; above yellowish red, or golden rufous; beneath less brilliant and more yellow; membranes dark and marked along the digits with orange stripes. It conceals itself in the leaf of the plantain, and, if disturbed in the day time, more resembles a butterfly or a moth than a bat.

38. *Vespertilio hasseltii*, TEMM.

A large-footed bat with small second lower premolar internal to the tooth-row. Found in Tenasserim.

39. *V. berdmorei*, BLYTH.

A small species, of which specimens were obtained in the valley of the Tsit-toung. It is of a dark fuscous hue, the fur slightly

tipped with earthy brown on the upper parts and much more largely tipped with a paler (almost whitish) brown below; membranes dusky. This is given on the authority of Blyth, but as the specimens have been lost it has not been verified by other naturalists.

Order.—SECUNDATES.

Sub-order.—*CARNIVORA.*

Family.—**Canidæ.**

40. *Canis rutilans*, MÜLL.—The Jungle Dog (Taw-khwe, *Burm.*).

General colour bright rusty-red or rufous-fawn colour, paler beneath; ears erect, rather large, somewhat rounded at the tip; tail moderately brushed, reaching to the heels, usually tipped blackish; limbs strong; body lengthened. Smell peculiarly fœtid. It is not common anywhere; according to Mason it is found in Tenasserim, and a female from this province is, or was, in the People's Park in Madras.

41. *C. aureus*, LINN.—The Jackal (Mye-khwe, *Burm.*).

Fur of a dusky yellowish or rufous-grey, the hairs being mottled black, grey and brown, with the under fur brownish yellow; lower parts yellowish-grey; tail reddish-brown ending in a darkish tuft, and more or less hairy; more or less rufous on the muzzle and limbs. A specimen was shot in the upper (British) portion of the valley of the Irrawaddy (at Mye-dai) and the skin was sent to Calcutta," where" according to Mason "it was identified with the "species so abundant in that vicinity." According to Blyth "it has been shot in the vicinity of Prome and at Thayetmyo". Mye-dai is nearly opposite to, and Prome is about fifty miles below and on the other bank of the Irrawaddy from, Thayetmyo. Blyth adds "In Arakan it has not passed the boundary of the Naf river."

Family.—**Viverridæ.**

Civets.

Feet pentadactylous, claws small, incurved, blunt, partially retractile; pollux small and raised.

42. *Viverra zibetha*, LINN.—The Grey Civet Cat (Kyoung-myeng, *Burm.*).

Though not so abundant as *Viverricula malaccensis* it is found throughout the province. More or less yellow-grey, or hoary grey, with black spots and stripes; throat white with a broad transverse band; another on the side of the neck on each side, shewing four alternating black and white bands; beneath hoary-white; tail with six black rings; limbs nearly black or sooty-

brown. It is noticeable on account of its mane whence its Burman name of "Pony Cat". The body markings are comparatively indistinct.

43. *V. megaspila*, BLYTH.—The Large-spotted Civet Cat.

Of the same size as the preceding but with the body markings fewer, larger, and more distinct and for the most part entire, shewing no tendency to group into ocelli or into vertical stripes on the sides. It has a comparatively broad black dorsal stripe and a tail somewhat peculiar in its markings.

44. *Viverricula malaccensis*, GMELIN.—The Common Viverette (Kyoung ka-do, *Burm.*; Wa-young-kyoung-byouk, *Arakan*).

Tawny grey or greyish-brown with several longitudinal lines or streaks on the back and croup; the sides spotted more or less in rows; some transverse bands on the sides of the neck and also a few indistinct lines; abdomen without spots; head darker, with a black stripe from the ear to the shoulder; tail long with eight or nine complete dark rings. Common everywhere. Specimens have been sent from Mergui and from Arakan.

45. *Prionodon maculosus.*

Upper part brownish-black broken up by greyish-white bands, lower parts white, tail brownish-black with seven white rings, tip whitish. Two broad black bands run down each side of the upper part of the neck, between them is a narrow greyish-white band with a faint mesial dark streak, somewhat interrupted and passing into two bands of elongate spots between the shoulders. The two broad dark bands pass into the dark patches of the back; on each side of these bands is a white rather wavy stripe commencing at the ear and continued along the neck, above the shoulder and down the side of the thighs, becoming more irregular behind; below this again is a dark band somewhat broken up into spots in front passing over the shoulder and continued as a line of large spots along the side. The back is chiefly brownish-black, crossed by six narrow transverse whitish bands, the first five equi-distant, the foremost communicating with the mesial neck band, and the hinder all uniting with the white band on the side so as to break up the dark colour into large spots. There are small black spots on the fore neck, lower portion of the sides, and outside of the limbs, the spots on the fore neck forming an imperfect gorget. The white rings on the tail are not much more than half the breadth of the dark rings; the last dark ring near the tip and the first white ring are narrower than the other. Nose dark brown mixed with grey, a dark ring round each orbit with a streak running back to below the ear, and another passing up to the crown; forehead between and behind the eyes and in front of the ears and cheeks, pale grey.

Ears rounded and clad with blackish hairs outside and near the margin inside, a few long pale hairs on the inner surface of the ear conch. Whiskers long, extending to behind the ears, the upper brown, the lower entirely white. Soles, except the pads which are naked, covered with fine hair. Fur soft and short throughout; that on the upper parts is ashy grey at the base; lower fur very fine, tips of the longer hairs black or white; none of the hairs on the back are more than half an inch long. Tenasserim.

Sub-family.—*Paradoxurinæ.*

Tree Cats or *Paradoxures.*

Plantigrade; habits nocturnal; tail can be rolled up but is not prehenside.

46.—*Paradoxurus grayi*, BENNET.—The Hill Tree Cat.

Colour above light unspotted fulvous brown shewing in certain lights a strong cinereous tinge; beneath lighter and more cinereous; limbs ash-coloured, deepening in intensity towards the feet, which are black; tail of same colour as the body, the end dark, white tipped; ears rounded, hairy, black; face black, except the forehead; a longitudinal streak down the middle of the nose; a short oblique whitish or grey band under each eye. Feeds on birds, small animals, and vegetable food.

47. *P. musanga*, F. CUV.—The Common Tree Cat (Kyoung-won-baik, *Burm.*).

General colour brownish-black with some dingy yellowish stripes on each side more or less indistinct and sometimes not noticeable; a white spot above and below each eye, and the forehead with a whitish band in some; a black line from the top of the head down to the centre of the nose is generally observable. In many individuals the ground colour appears to be fulvous with black pencillings, or mixed fulvous and black; limbs always dark brown. Some appear almost black throughout; some fulvous grey washed with black, the face black and the tail dark; others appear to have the sides spotted.

48. *P. trivirgatus*, TEMM.—(Kyoung-na-ga, *Burm.*).

The Three-striped Paradoxurus is very common in Tenasserim and often enters houses in search of rats. It has not been found in Arakan.

49. *P. leucotis*, BLYTH.—The Light-eared Cat (Kyoung-na-rwek-hpyoo, *Burm.*).

The fur is dense and woolly at the base but with long straight hairs intermixed; the prevailing colour is pale, dull yellowish, or fulvous brown, with three blackish dorsal streaks; below paler, more or less albescent; a white streak on the nose to between the

eyes; the ears black at the base with the tips pinky white or flesh coloured. It is common in Tenasserim and has been found in Arakan.

50. *Arctitis binturong*, RAFFLES.—The Black Bear-cat (Myouk-kya, *Burm.*).

In its habits it is nocturnal, and both arboreal and terrestrial and omniverous. General colour throughout deep black, with a white border to the ears and a few brown hairs scattered over the head above and on the anterior surface of the fore-legs; hairs long, rigid, and diverging; tail very thick at the base, tapering to a point with bristling, straggling hairs, exceeding those of the body in length: its tail is prehensile; it is about the size of a small monkey: uncommon. It is the only placental mammal of the old world with a prehensile tail.

Family.—**Herpestidæ.**

Mungoose.

Limbs short, hinder ones semi-plantigrade; tongue rough with horny papillæ; habits active; of bold and sanguinary disposition; female has only four mammæ.

51. *Urva cancrivora*, HODGSON.—(Mywe-ba, *Burm.*).

This, the Crab-eating Mungoose, is the only specimen of the family that has yet been found in British Burma. General colour fulvous iron grey; inner fur woolly; outer of long, straggling, lax hairs, generally ringed with black, white and fulvous; in some a uniform tawny tint prevails and in a few dark rusty brown mixed with grey is the prevalent hue; abdomen brown; limbs blackish brown; a white stripe on either side of the neck from the ear to the shoulder; tail rufous or brown, with the terminal half rufous.

Family.—**Felidæ.**

Head rounded; limbs powerful; canines large and sharp; generally solitary.

52. *Felis tigris*, LINN.—(Kya, *Burm.*).

Tigers are common in the forests everywhere, more especially in those on the Tenasserim and Arakan hills, but their number is gradually diminishing. Man-eaters are very rare.

53. *F. pardus*, LINN.—The Pard (Kya-thit, *Burm.*).

Probably more common than tigers, and black individuals (Var. *melas*, Peron. Kya-mai, *Burm.*, of an uniform dull black colour, the spots shewing in particular lights) are not unknown in the extreme south.

54. *F. macrocelis*, TEMM.—The Clouded Leopard (Thit-kyoung, *Burm.*).

This has been obtained from the Arakan Roma mountains. As it grows older its colour becomes more fulvescent. A double chain of small chain-like stripes from the ears diverging on the nape to give room to an inner and smaller series; large irregular clouded spots on the back and sides edged very dark and crowded together; loins, sides of belly, and belly marked with irregular small patches; some black lines on the cheek and sides of the neck, and a black band across the throat; tail long, thickly furred, and with dark rings.

55. *F. viverrina*, BENNET.—The Fishing Tiger-cat.

This has been obtained in Tenasserim and is pretty generally diffused, living in low watery situations and preying upon fish. The fur is comparatively coarse, of a mouse grey colour more or less deep and sometimes tinged with tawny, with large dark spots more or less numerous, oblong on the back and neck and in lines; more or less rounded elsewhere, and broken or coalescing; cheeks white, a black face stripe; beneath dull white; chest with five or six dark bands; belly spotted; tail with six or seven dark bands and a black tip; feet unspotted; whiskers either entirely white or with a white tip.

56. *F. temminckii*, VIGORS.—The Bay Cat.

Above deep bay red; paler beneath and on the sides; a few indistinct dark spots on the sides; throat white; ears internally and tip of tail black. The lower surface in some is reddish-white, with large and small maroon brown spots; cheeks yellowish with two black streaks; a pale black edged line over the eyes; whiskers black with white tips; nails black. Not always spotted. The Fire-cat of the Kareng ?.

57. *F. undata*, DEMAREST.—The Leopard-cat. (Khye-thit, *Burm.*; Thit-kyoung, *Arakan*).

Generally diffused. Specimens from Tenasserim and from Arakan present the ordinary colours of Indian examples. It is as large as a small dog and, like a leopard, is spotted with black on a yellow ground. It is a fierce, savage, untameable animal, living on trees in thick forest and preying on birds and small quadrupeds, sometimes dropping on to larger animals and eating its way into the neck.

58. *F. chaus*, GILDENST.—The Common Wild Cat.

Yellowish-grey, more or less dark and unspotted, approaching to rufous on the sides of the neck and abdomen where it unites with the white lower parts; a dark stripe from the eyes to the muzzle; ears slightly tufted, rufous black externally, white internally; limbs with two or three dark stripes internally, occasionally faintly marked externally also; tail short, more or less annulated

with black, most conspicuously so in the young. It breeds twice a year, having three or four young at a birth; like the preceding, it is savage and untameable.

Family.—**Mustelidæ.**

Size small; body elongated, vermiform; ears short, rounded; feet short; toes separate; claws sharp; tail short or moderate.

Sub-family.—*Lutrinæ.*

Otters.

Feet webbed; tail flattened.

59. *Lutra nair*, F. CUV.—The Common Otter (Hpyan, *Burm.*).

Above hair brown or light chestnut brown, in some grizzled with hoary tips, in others with a tinge of isabelline: beneath yellowish-white or reddish-white; upper lip, sides of head and neck chin and throat whitish; in some the throat tinged with orange brown; paws albescent in some, simply of a lighter shade in others; tail brown beneath. It has its lair under huge rocks, among boulders, and in alluvial countries excavates extensive burrows, generally in some elevated spot close to the river, with numerous entrances. It is found throughout the province.

60. *Aonyx leptonyx*, HORSFIELD.—The Small-clawed Otter.

Claws very minute; above earthy brown or chestnut brown; lips, sides of head, chin, throat and upper part of breast white, tinged with yellowish-grey. In young individuals the white of the lower parts is less distinct, sometimes very pale brownish. Common.

Sub-family.—*Mustelinæ.*

Martens, Weasels, and Badgers.

61. *Martes flavigula*, BODDAERT.—The Black-capped Marten.

Blackish-brown face; cheeks and nape abruptly demarcated; chin and throat white; breast and fore part of the body pale yellowish-brown, mostly darker along the middle of the back and passing to blackish-brown on the croup, fore limbs, hind-quarters and tail. The fur is longer and the tail more bushy than in the Malayan species, from which it differs also in having a wholly black cap instead of a brown cap with a black periphery. It has been found in Arakan. Found in pairs, often in small families. Feeds on birds' eggs, rats, lizards and snakes: it is very destructive to poultry.

A skin belonging to the Malayan race, distinguished from the one described above by the colouration being generally paler, by the crown of the head and nape being brown instead of black, by wanting the white chin and by the fur being shorter, has been obtained in southern Tenasserim.

62. *Helictes nipalensis*, HODGSON.—The Brock-weasel.

Above earthy brown, below with the edge of the upper lip and insides of the limbs and terminal half of the tail yellowish; a white mesial stripe from the nape to the hips, and a white band across the forehead, spreading on the cheek and confluent with the paler colour of the lower surface; tail cylindrical and tapering and about half the length of the animal; half of the planta naked; fur long, not harsh.

63. *Arctonyx collaris*, F. CUV.—The Hog-badger (Khwe-htoo-wek-htoo, *Arakan*; Khwe-ta-wek-wek-ta-wek, *Burm.*).

Upper parts with the head, throat and breast yellowish-white, more or less grizzled; nape of neck, a narrow band across the breast, anterior portion of the abdomen and the extremities, deep blackish-brown; a brown band from the middle of the upper lip gradually widening posteriorly and including the eyes and ears; another smaller and narrower band arising from the lower lip, passing through the cheek and uniting with the former on the neck. Sleeps during the day but is active at night: its gait is heavy and slow and it can with facility move on its hind feet alone.

64. *A. taxoides*, BLYTH.—Sand-badger.

This is about half the size of the preceding, similarly coloured and marked but much brighter, the coat much longer and finer, the muzzle is less broad and hog-like, the ears are proportionally smaller and the tail is shorter. Found in Arakan and as far east as the Tsit-toung.

Family.—**Ursidæ.**

Bears.

65. *Helarctos malayanus*, RAFFLES.—The Sun Bear (Wek-won, *Burm.*).

This, the Malayan black bear, is the only representative of the family known to inhabit Burma. The fur is comparatively fine and short and of an uniform dark colour or black with the exception of a large semi-lunar-shaped white patch on the breast and a yellowish patch on the snout and upper jaw. The lips and tongue are extremely flexible.

Sub-order.—*INSECTIVORA.*

Family.—**Tupaidæ.**

Tupayes.

Ears oval, rather large; feet pendactylous; tail long, densely clothed with hairs, somewhat distichous; hair of body soft and glistening.

66. *Tupaia peguana*, LESSON.—The Tree Shrew (Tswai, *Burm.*).

General hue a dusky greenish-brown, the hairs being tinged brown and yellow; lower parts the same but lighter, and with a pale buff line; a stripe from the throat to the vent, broadest between the fore-arms and then narrowing; ears livid red with a few short hairs; palms and soles dark livid red; nails fleshy. Common and hardly separable from *T. ferruginea* of the Malay countries. Specimens from Arakan differ from those of other parts of Burma by being lighter and with the pale central line broader.

Family.—**Erinaceidæ.**

Hedge-hogs.

Back protected by spines or rigid bristles with setæ intermixed; feet pendactylous, not fossorial.

67. *Hylomys suillus*, MÜLLER.

An adult male and an adult female were sent by Major Berdmore from the valley of the Tsit-toung, and Mr. Blyth was inclined to consider it to be a new species nearly resembling *H. suillus* of the Malayan archipelago but differing from it in the much greater development of the tail, and he named it *H. peguensis*. Subsequently, after seeing some Bornean specimens at Leyden, without however actual comparison, he arrived at the conclusion that they are identical and he has shewn it as *H. suillus* in his latest work. There remain his original view and the fact of his not having compared the Burman and Bornean specimens, and it should, perhaps, be quoted as *H. suillus* (*H. peguensis?*).

Family.—**Soricidæ.**

Sub-family.—*Soricinæ.*

Shrews.

Upper front teeth large and strongly hooked and much longer than their posterior spur.

68. *Pachyura indica*, GEOFF.—The Indian Musk Shrew (Kywek-tsoot, *Burm.*).

The ordinary pale grey musk shrew, generally called the "Musk-rat" in India, is common. It is of an uniform blueish-ash or pale grey colour, very slightly tinged with ferruginous and most so on the under parts; naked parts flesh-coloured. The musky odour is strong.

69. *P. griffithii*, HORSFIELD.—The large Black Shrew.

Distinguished from the following by its large teeth, deep, blackish-grey, glossy and soft fur and small ears. Hills of Arakan?

70. *P. murina*, LINN.—The Mouse-coloured Shrew.

Brownish or dark brownish-grey above; greyish-brown beneath; the fur longer and coarser than in *P. indica*; ears larger; tail nearly equal in length to the body, rounded, thick at the base, nearly nude, with a few longish hairs scattered over it; feet and tail flesh-coloured; smell not so strong as in *P. indica*.

Macrotis.

71. *Crocidura Macrotis*, ANDERSON.

Snout semi-nude, long and rather broad across the incisors. Ears very large and rather patulous; sparsely covered with short brown hairs on their outer, and partially so on their inner surface: feet only sparsely covered with short brown hairs, paler on the toes which are rather short, claws well developed. Fur very short, shining dark brown above; lower half of ears, chin and feet, yellowish brown. Common in Tenasserim.

72. *C. fuliginosa*, BLYTH.—The Dusky Shrew.

Fur dense, porrect, somewhat velvety; dark slaty at base, the rest fuliginous brown with inconspicuous dull hoary tips; beneath scarcely (if at all) paler; the scattered long hairs upon the tail small and fine. Soles bare to the heel. Tenasserim.

73. *C. blythii*, ANDERSON.

Snout narrow, long and pointed; ears rather flattened above, rounded posteriorly and of moderate size; feet moderately large; fore limb with long hairs to the wrist, longer than those on the corresponding portion of hind limb; feet covered with short brown hairs, a few longer overhanging the claws; claws strong but short; snout, ears, feet and tail brownish; tail thickened at the base, rounded, ringed and rather thickly clad with brown hairs, with a few longer whitish hairs intermixed and nearly equalling the length of the trunk without the head; fur soft, rather long; a rich rusty brown with a golden sheen in certain lights; under surface rusty grey; some are darker than others. There is a considerable difference between the size of the sexes. Found in Arakan.

Sub-family.—*Talpinæ.*

Moles.

74. *Talpa leucura*, BLYTH.—The Long-tailed Mole.

Deep slaty blue with canescent gloss, iridescent when wet. The tail is well developed and club-shaped, much restricted in the basal half, and clad and tufted with white hairs. The colour is less fulvescent than in *T. microura* of Nipal. There is no perforation of the integument over the eye, the skin being, instead, attenuated and imperfectly transparent. It has only two small premolars in the upper jaw anterior to the great last premolar. Found in the valley of the Tsit-toung.

Order.—CETACEA.

Anterior feet changed into fins; no posterior extremities; tail horizontal, flat, continuous with the trunk; no external ears.

Family.—**Delphinidæ.**

Dolphins and Porpoises.

Teeth numerous, conical; head of moderate size.

75. *Orcella fluminalis*, ANDERSON.—The Irrawaddy Dolphin. Colour uniform dirty white; inhabits the deep channels of the Irrawaddy from 300 to 600 miles from the sea.

76. *Delphinus plumbeus*, DUSSUMIER.—(La-maing, *Burm.*). Thirty-six teeth on each side of the upper jaw and thirty-two on the lower jaw. Of an uniform leaden colour, with the lower jaw white. Common along the coast and in the large rivers as far as tidal influence extends.

Family.—**Balænopteridæ.**

No teeth (except in the fœtal stage); head enormous.

Rorquals.

77. *Balænoptera indica*, BLYTH.—The Indian Rorqual or Fin-back (Nga-tsheng, *Arakan*; Nga-won, *Burm.*).

An adipose fin on the back; belly marked by longitudinal grooves; head about one-fourth of total length. Coast of Arakan. According to Jerdon one individual was cast ashore in Kyouk-hpyoo measuring 90 feet in length and another on Amherst Island measuring 84 feet. It is not known if this is or is not the species common amongst the islands of the Mergui archipelago.

Order.—PROBOSCIDEA.

Family.—**Elephantidæ.**

78. *Elephas indicus*, LINN.—(Tsheng, *Burm.*).

The Asiatic Elephant is common in the forests of the Arakan, Pegu and Tenasserim hills.

Order.—RODENTIA.

Two incisors in each jaw; no canines. Feet unquiculate, generally with five toes.

Family.—**Sciuridæ.**

Sub-family.—*Pteromydinæ.*

Flying Squirrels.

Feet either pentadactylous or the fore feet with four toes and a thumb-wart. Skin of flanks extended between fore and hind feet forming, when expanded, a wide parachute.

79. *Pteromys cineraceus*, (Shoo-byan, *Burm.*).

A large Flying Squirrel of a dark maroon colour, having the fur uniformly tipped with white, even on the parachute membrane, imparting a hoary grey appearance to the whole upper surface; under parts white, more or less pure; paws black; tail generally white almost to the end, which is blackish or black. One specimen in the Indian Museum, which was obtained in Tenasserim, is unusually rufous, with the tail as far as the black tip coloured uniformly with the upper parts. Found throughout the province.

80. *Sciuropterus phayrei*, BLYTH.—The Hairy-footed Flying Squirrel.

Upper surface bright ferruginous, grizzled with some pale tips intermingled; tail strongly rufescent, pale towards the base; under surface of parachute deep ferruginous, which more or less imbues the whole under surface; ears small, and with a tuft of long fine hair surrounding them; feet, especially the hind ones, with brushes of hair at the claws.

81. *S. spadiceus*, BLYTH.—(Kywek-shoo-pyan, *Arakan*).

A diminutive species. The upper surface is bright ferruginous bay in old specimens, with the membranes, limbs and tail dusky and the basal fourth of the latter pale rufous underneath; under parts dull white, with fur of a somewhat woolly texture; that of the upper parts dusky, except at the tip. Found in Arakan.

Sub-family.—*Sciurinæ.*

Squirrels.

Fore feet with four toes and a thumb-wart; claws compressed, incurved; tail very long and bushy.

82. *Sciurus macruroides*, HODGSON.—The Large Black Squirrel (Leng-thek, *Arakan.*;—Sheng, *Burm.*).

It is as large as an ordinary cat and is deep black on the back and whitish-yellow below, with the ear-conch densely clad. It is found throughout the hilly portions of the province. The specimens from Arakan do not differ from those of the Eastern Himalayas but in Tenasserim there is a local variety with a broad pale transverse band on the loins.

83. *S. ferrugineus*, F. CUV.—The Bay Squirrel.

It is found in the hilly parts of Arakan and Pegu. It is entirely of a deep rufo-ferruginous colour, rather darker above than below, the tip of the tail yellowish-white and the toes of all the feet blackish.

84. *S. caniceps*, GRAY.—The Golden-backed Squirrel.

Found only in Tenasserim, and more common in the south than in the north. A wide difference is found in the colouration of different specimens, especially of the upper parts; in some it is

grizzled fulvous above; the limbs and tail grizzled ashy with an abruptly defined black tip to the latter; the under parts and inside of the limbs pale grizzled ashy. In bright specimens the nape, shoulders and upper part of the back are vivid light ferruginous or golden fulvous, sometimes continued to the tail, more generally shading off gradually to the rump, and in some but slightly developed even upon the nape and shoulders "there is also some "variation in the colouration of the abdomen. Some specimens "are almost white below, others more or less cinereous and more "or less punctulated. In some the colour of the lower parts is "olivaceous grey, scarcely paler than the sides. In very many "specimens there is a dark mesial line more or less developed, but "it is not constant"; whiskers long and black; slight albescent pencils to the ears, more or less developed.

85. *S. atrodorsalis*, GRAY.—The Black-backed Squirrel.

The back varies in colour from dark speckled grey with scarcely a tinge of fulvous, to grizzled rufous tawny, the head being, in the former case, of the same colour as the back, or slightly rufescent, in the latter distinctly ferruginous, the ears being usually deeper rufous than the forehead. Occasionally the whole back from the nape to the insertion of the tail is black; more commonly there is a black patch from between the shoulders to the rump, but frequently the area of the black is shorter and narrower and occasionally, especially in the more rufous specimens, not a trace remains. The whiskers are sometimes entirely white, sometimes all black, occasionally mixed white and black. The tail is normally grey like the sides, with more or less distinct transverse bands, due to the hairs being ringed greyish-white and black, but in some specimens all the hairs are black except at their extreme tip, and in others they are entirely pale rufous, save at the extreme base and even this amount of dark colouration disappears towards the tip of the tail. The lower surface, including the breast, abdomen and inside of the limbs is, normally, rich bay, but sometimes chestnut, pale ferruginous or even pale rufescent; in the dark rufous form the red sometimes extends to the throat, in other cases the lower neck is grey, or the whole central portion is pale rufous, and only the lateral parts bay, especially on the breast. In some the middle of the breast and abdomen is grizzled like the sides and throat

86. *S. rufigenis*.

This squirrel is nearly the same size as *S. caniceps* and *S. atrodorsalis* but the tail is much shorter and distinctly distochous below. Upper parts dark olive, grizzled, cheeks ferruginous, a small white spot behind the ear, lower parts white, tail hoary, black with

white rings and tips above, chestnut below. The fur on the back is of two kinds, the finer and shorter hairs being dark leaden colour at the base, pale yellowish-grey at the tips and about a quarter of an inch long in the middle of the back, the longer hairs are coarser, about half an inch long and black with a pale yellow ring near the end the tips being black. The longer hairs are most abundant near the middle of the back, less so on the sides. Forehead rufous mixed with black, sides of the head dark ferruginous above, paler below, shading off gradually into the colour of the face and throat. Ears rounded, thinly covered inside and out with short hairs; a little patch of silky white hair behind each ear is concealed by the ear-conch when the ears are laid back. Whiskers black. The hairs of the lower parts are dark grey at the base, white at the ends; there is a tinge of rufous on the fore neck and throat in some specimens. Fore limbs yellowish-olive outside, like the sides, whitish inside; hind limbs also whitish within but more rufous outside. Tail clad above with black hairs having a white ring near, but not at, their base and white tips producing a hoary appearance; lower surface of tail chestnut, the longer hairs on the side with black and white tips. In thick forests in eastern Tenasserim.

87. *S. phayrei*, BLYTH.

Lower parts bright ferruginous, inclining to maroon on the belly and continued broadly along the under or hind surface of the tail to its black tip; inside of limbs ferruginous, continued nearly round the hind limbs, and upon all the feet; the fore-limbs tinged with dusky externally above the pale rufous foot; a broad imperfectly defined blackish band upon the flanks separating the colours of the back and belly; tail bushy and with a well defined black tip. Tenasserim.

88. *S. piceus.*

Found in Tenasserim.

89. *S. lokriah*, HODGSON.

Upper parts fulvous, under parts and inside of the limbs moderately deep ferruginous; tail above coloured nearly as the back but the hairs with whitish tips more or less developed and more or less ferruginous underneath or behind, with a double margin of black and hoary. A mountain race found in the Arakan hills.

90. *S. pigerythrus*, IS. GEOFF.

Grizzled above; below weak ferruginous, more or less deep, in some tolerably deep, in others faint and passing to whitish on the throat and sides of the face; tail coloured like the back and more or less distinctly annulated above with a black extreme tip; below the rufous of the lower parts extends more or less up to its base, but seldom conspicuously; hind feet fringed internally and all the toes

tufted with rufous hairs. Common in the neighbourhood of Rangoon.

91. *S. assamensis*, Mc CLELLAND.

Differs from the last in being more fulvescent above and much less so underneath; tail tip generally blackish; and commonly a greater development of pale ferruginous underneath, very indistinctly annulated if at all so; hue of the upper parts more or less fulvescent; of the lower dingy whitish with, commonly, a slight fulvescent tinge. Found in Arakan.

92. *S. berdmorei*, BLYTH.—The Ground Squirrel.

The prevalent colour is grizzled black and golden fulvous, with an obscure pale central dorsal streak, flanked by a blackish band; this again by a conspicuous yellowish-white line from the shoulder to the croup; then blackish again with a second whitish lateral band; below again dusky, and the under parts yellowish-white passing to ferruginous towards the vent and underneath the tail. The head is tinged with ferruginous. According to the late Colonel Tickell it is at least as much terrestrial as arboreal, and the late Mr. Blyth doubted if it ever ascends trees. The tongue is remarkably long and protrusile. Found in eastern and central Tenasserim.

93. *S. mouhoti*, GRAY.

The upper surface is yellowish-brown, puncticulated, the hairs being black with two buff rings. The fine woolly under-fur is dark slate coloured at the base with buff tips. On each side of the back there are two longitudinal pale lines extending from the shoulder to the thigh, the upper narrow and well defined, the lower broader and less marked. Between the two and above the upper pale line the fur is darker in *some* specimens. The sides below the lower pale lateral bands are greyish-brown puncticulated. The lower parts throughout are white, sometimes tinged with buff. The tail hairs are light brown at the base, then black, then brown again and then black to near the tips which are whitish. Whiskers black. The ears are rounded with very short hairs outside. The only specimens obtained in Burma are from the country east of Maulmain.

This has been identified with *S. berdmorei* by Gray and Blyth, but is separated by Blanford.

94. *S. barbei*, BLYTH.

A diminutive species found in Tenasserim and commoner to the southward. There are five distinct black bands, three of equal length and breadth, the outermost less developed, alternating with four rusty-whitish bands, of which the two outer are rather brighter than the two inner and are continued forward to the moustaches,

passing beneath the eye; under parts and inside the limbs bright pale ferruginous; tail rufous, each hair subterminated with black but tipped with white. Specimens from southern Tenasserim and from Malacca have much darker dorsal bands and shorter ear-tufts than those from the neighbourhood of Maulmain.

Family.—**Muridæ.**

Rats and Mice.

Incisors compressed or rounded; fore feet usually with four toes, hind feet with five.

95. *Hapalomys longicaudatus*, BLYTH.

Fur long and soft, slatey for the basal two-thirds, then glistening brown with black tips and a few long hairs of very fine texture interspersed; lower parts dull white; whiskers black, long and fine; a tuft of fine blackish hair anterior to the ears, which are scantily fringed with fine long hairs. Found in the valley of the Tsit-toung.

96. *Nesokia indica*, BLYTH.—The Indian Mole Rat (Re-kywek, *Burm.*).

Fur long and somewhat harsh, brown mixed with fawn, the short fur softer and dusky; paler beneath and tinged grey; the colour generally like that of the common rat, but with more fawn or red intermixed and lighter beneath; head short and truncated; ears small, nearly round, covered with fine down or small hairs; tail naked, nearly as long as the body without the head; whiskers long and full; incisors orange yellow. An Indian species of large field rat which has been obtained at Toung-ngoo. It is solitary and fierce and lives secluded in spacious burrows in which it stores large quantities of grain.

97. *Mus bandicota*, BECHSTEIN.—The Bandicoot Rat (Mye-kywek, *Burm.*).

Dark dusky olive brown colour above, with some black bristly hairs intermixed; beneath lighter mixed with grey; incisors dark olive green at the base, becoming yellow at the extremities; the molars have strong alveolar processes; they become quite tubercular when old. The tail is scaly, with a few short adpressed bristly hairs. The female has twelve teats.

98. *M. decumanus*, PALLAS.—The Common Brown Rat (Kywek, *Burm.*).

Above dusky cinereous brown with a tinge of yellow, the shorter hairs being slatey at the base with a yellow tip, and the longer ones dusky blackish; beneath dirty pale ashy; ears as broad as long, rounded; tail naked and scaly. Common everywhere.

99. *M. robustulus*, BLYTH.—The Tree Rat.

It abounds in Pegu and Tenasserim, and keeps especially, though by no means entirely, to cocoanut palms and bamboos. It nestles in cavities and not amongst the branches; by night it occasionally visits out-houses. It is a stoutly formed animal, with a tail not quite so long as the head and body, and with short seta of equal length throughout. The body is mouse-coloured, but whitish on the belly. The feet are conspicuously whitish.

100. *M. caudatior*, HODGSON.—(var. *cinnamomeus*, BLYTH).

The fur is soft and on the upper parts of a bright cinnamon colour, with inconspicuous black tips; the under parts are white, abruptly divided from the cinnamon hue above. It is found in the lower portions of the valleys of the Irrawaddy and of the Tsit-toung.

101. *M. concolor*, BLYTH.

A house mouse; rusty brown above, paler beneath; tail as long or a little larger than head and body; eyes of moderate size; ear-conch moderately ample. Lives principally in the thatch of roofs. Upper and Lower Burma.

102. *M. peguensis*, BLYTH.

A field mouse with the tail longer than the head and body and well clad with hairs that become longer towards the end. The fur is very full and dense, pale yellowish-brown on the upper parts, slightly-yellowish white below; whiskers remarkably long. Found in the valley of the Tsit-toung.

103. *M. nitidulus*, BLYTH.

A house mouse, common at Toung-ngoo, with tail equal to the head and body and uniformly furnished with minute seta to the end; ears large and ample; colour nearly that of *M. decumanus*, with the under parts subdued white tolerably well defined. Found in the valley of the Tsit-toung.

104. *M. beavani*, PETERS.

Found in the valley of the Salween.

105. *M. badius*, BLYTH.

A large-eyed mouse with black whiskers; colour of the upper parts rufous chestnut or cinnamon hue; lower parts almost pure white. Found in the valley of the Tsit-toung.

106. *Rhizomys sumatrensis*, RAFFLES.—The Sumatran Bamboo Rat (Pwe, *Burm*).

Found in Tenasserim; fur thin and bristly.

107. *Rh. castaneus*, BLYTH.—The Short-tailed Bamboo Rat.

Fur soft and dense; colour slatey grey, base of the piles pale dusky ash, tipped with vivid light chestnut bay which is denser and consequently appears brighter on the cheeks and sides of the head. Under parts merely paler than the upper; the faint ashy hue of

the bases of the piles inconspicuous; feet semi-nude and flesh-coloured; the claws pale. It differs from *M. badius* only in its brighter colouring. In some specimens from Tenasserim there is a white spot more or less distinct in the middle of the forehead. Found in Arakan, Pegu and Tenasserim.

108. *Rh. minor*, GRAY.—The Bay Bamboo Rat.

Allied to the preceding but of a dusky brown colour with white muzzle and white around the eye and pale naked feet; fur soft and dense; tail comparatively short.

Family.—**Hystricidæ.**

Porcupines.

Body more or less clad with acuminate spines; fore feet tetradactylous with a small wart-like thumb.

109. *Hystrix bengalensis*, BLYTH.—The Bengal Porcupine (Hpyoo, *Burm.*).

Crest small and thin; the bristles blackish; body spines much flattened and strongly grooved, terminating in a slight seta; slender flexible quills white, with a narrow black band about the centre; the thick quills basally white; the rest black, mostly with a white tip; a distinct white demi-collar; spines of lumbar region white, as are those of the tail and rattle. Found in Arakan.

110. *H. longicauda*, MARSDEN.—The Crestless Porcupine.

No crest; head, neck, fore half of the body, entire belly and limbs covered with black spinous bristles two or three inches long, shortest on the head and limbs; the large quills of the back and croup vary from seven to twelve inches in length, mostly white with one central black ring; tail conico-depressed with some quills about five inches long, and the rattle consisting of from thirty to forty hollow cylinders, some closed, others open.

Family.—**Leporidæ.**

Hares.

Fore feet with five toes, hind feet with four, all with hairy soles; nails long, compressed; tail short or none.

111. *Lepus peguensis*, BLYTH.—The Pegu Hare (Yoon, *Burm.*).

The fur of the upper parts is pale dusky-grey at the base, then black, and finally bright fulvous brown with black extreme tips; towards the tail above is a strong tinge of ash colour. The colour of the upper parts passes directly into the pure white of the belly, ears brownish anteriorly, white at the base and the tip brown;

neck, breast and flanks more or less sandy-rufescent; limbs with slight fulvous tinge with white hairs intermixed; on the hind limbs the white predominates: chin and throat conspicuously white: a large black terminal patch on the ears posteriorly. Found in Pegu at least as low down as Henzada and probably lower, though not so far down as Rangoon.

Order.—UNGULATA.

Feet with hoofs.

Family.—Suidæ.

Pigs.

112. *Sus cristatus*, WAGNER.—The Indian Wild Boar (Tawwek, *Burm.*).

Head longer and more pointed than in the European boar; the plane of the forehead straight and not concave; ears small and pointed; tail more tufted; the malar beard well marked; colour of adult brownish-black, scantily covered with black hairs. The young is more hairy than the adult, of a tawny or fulvous colour and striped with dark brown. The skulls of those from Tenasserim are smaller than of those from Arakan.

Family.—Tragulidæ.

Chevrotains.

Tail very short; ears moderate; no eye pits.

113. *Tragulus kanchil*, RAFFLES.—The Mouse Deer.

This deer, which is about the size of a hare, is found in Tenasserim and in parts of Pegu, but is not common. The colour is nigrescently rufous, but the lower parts are commonly rufous, with the exception of the white on either side of the pectoral line, and this white, with its medial dark streak (*T. kanchil*) extends more or less backward in proportion as another white streak is continued forward on either side of the belly from behind. The neck is rufous, with a median dark nape band well defined.

114. *T. napu*, F. CUV.

Much larger and with much stouter limbs than the preceding. Colour above brown, becoming paler and greyer on the sides with a very distinct dark line from the nape down the back of the neck. Five white stripes on the throat, one longitudinal in the middle and two oblique on each side, the upper lateral band much shorter than the lower: in the adult these unite in front. The interspaces between the white bands are dark brown, darker than the sides of the neck. The abdomen is mostly white, the breast and the space between the thighs purer white than the rest; in the young all the middle portion of the abdomen between the broad white breast

and the narrower white groin is smokey-brown; in both there is a rudimentary dark median band but not nearly so distinct as in *T. kanchil.* The rump is rufous and the tail brown above and white below and at the tip. Southern Tenasserim.

Family.—**Cervidæ.**

Deer.

Horns usually in the males only, deciduous.

115. *Rusa aristotelis*, CUV.—Samber (Tshat, *Burm.*).

Horns with a basal antler springing directly from the burr and pointing forwards, upwards and outwards, the beam bifurcating at the extremity, a snag separating posteriorly and pointing obliquely to the rear. Colour dark brown, in summer somewhat slatey; the chin, limbs within, tail beneath, and an irregularly marked patch on the buttocks pale yellowish or orange yellow, neck and throat with long hair forming a sort of mane; tail moderately long. Female and young dusky olive brown, lighter than the buck. Diffused throughout the great forests.

116. *Hyelaphus porcinus*, ZIMM.—Hog Deer (Daray, *Burm.*).

General colour a light chestnut or olive brown, with an eye spot; the margin of the lips, the tail beneath, limbs within, and abdomen white. In summer many assume a paler and more yellow tint and get a few white spots and the old buck assumes a dark slatey colour. The horns resemble those of a young spotted deer, with both the basal and upper tines very small, the former pointing directly upwards at a very acute angle and the latter directed backwards and inwards, nearly at a right angle, occasionally pointing downwards. The buck drops his horns in April generally and the doe ruts in September or October. The young are beautifully spotted.

117. *Panolia eldi*, GUTHRIE.—The Brow-antlered Deer (Htameng, *Burm.*).

A remarkable species, highly gregarious, resorting to openings in the forest. The basal antler is directed forwards and is very long and the horns are very divergent and with fewer terminal branches than in *Rucervus duvaucellii* (the Barasingha of Bengal) which in other respects it greatly resembles.

118. *Cervulus aureus*, H. SMITH.—The Barking Deer (Gyee, *Burm.*).

Colour a bright rufous bay; limbs internally, pubic region and tail beneath white; chin and lower jaw whitish; some white spots in front of the fetlocks of all four legs; facial creases dark brown. The doe has bristly black tufts of hair in a knob on the spot where

the horns of the buck are. It is the most numerous and generally dispersed of all the deer of the province, living very solitary (two being rarely found together) in the forests, coming to the skirts of the woods morning and evening to graze.

Family.—**Capridæ.**

Horns in both sexes; no eye-pits; females with two mammæ.

119. *Capricornis sumatrensis*, SHAW.—The Wild Goat (Tawtshiep, *Burm.*).

Rare, found on the mountains in Tenasserim and in Arakan and has been found in Northern Pegu. Varies much in colour from red to black, and the buck sometimes with a white nape, or the hairs of the nape may be white at the base only. Those obtained in Arakan were of a pale red brown colour with black dorsal list and resemble the figure of one from Formosa. Another, shot on the Zwai-ka-beng limestone rocks north of Maulmain, was of a mingled black and ferruginous colour.

Family.—**Bovidæ.**

Horns composed of a bony core and a persistent horny sheath.

120. *Bos gaurus*, C. H. SMITH.—Bison (Pyoung, *Burm.*).

Horns pale greenish with black tips, curving outwards, upwards and slightly backwards, and finally inwards, mostly short and thick and very massive; general colour dark chestnut brown or coffee brown. Nowhere does this grand species attain a higher development than in this province, where it is found in the thicker forests. It is gregarious, a herd generally consisting of a bull and some twelve or fifteen cows; a bull is sometimes seen alone. They feed generally at night or early in the morning; during the heat of the day they retire to some shady spot. The breeding season is in the cold weather and the young are born from June to October. The animal is timid and wary.

121. *B. frontalis*, LAMBERT.—Gayal.

It is known in the domestic state only and in the Arakan Hill Tracts.

122. *B. sondaicus*, S. MÜLLER.—The Burmese Wild Cow (Tsaing, *Burm.*).

When young of a bright chestnut colour, the males becoming dark as they attain maturity, excepting the white stockings and the white patch on each buttock, which is characteristic of the species. In the old bull the cuticle between the horns becomes enormously thickened, corneous and rugged.

123. *B. arni*, SHAW.—The Buffalo (Kywai, *Burm.*).

The buffalo is found everywhere in the plains in a domesticated state, and attains a remarkably large size. Those found wild are probably of the domestic race that have run wild.

Family.—**Tapiridæ.**

Tapirs.

124. *Tapirus malayanus*, RAFFLES.—The Malayan Tapir (Ta-ra-shoo, *Burm.*).

Larger than the American tapir and with no mane. A broad white band encircles the body shewing in marked contrast with the deep black of the legs, head and neck. The young are marked with light-yellowish spots and stripes on a brown ground, the spots becoming white on the inner part of the body. Its food is wholly vegetable, and it feeds during the night. It is harmless unless attacked. It is fond of water to which it takes readily remaining for a long time at the bottom. It frequents the uplands of Tenasserim as far north as 15°. It is very shy and but rarely seen : it is usually found in some thicket on the bank of a river.

Family.—**Rhinoceratidæ.**

Rhinoceroses.

Feet with three hoofed toes; one or two horns; tail short; skin very thick.

125. *Rainoceros sondaicus*, CUVIER.—The Lesser One-horned Rhinoceros.

It is found in the mountainous country nearly everywhere and at all elevations. The tubercles of the hide are uniformly of the same small size, and there is a fold or plait of the skin crossing the nape in addition to the one behind the shoulder blades.

126. *Rh. indicus*, CUV.—The Great Indian Rhinoceros (Kyan-tsheng, *Burm*).

Of large size; only one horn; skin with a deep fold at the setting on of the head, another behind the shoulder, and another in front of the thighs; two large incisors in each jaw, with two other intermediate small ones below and two still smaller outside the upper incisors, not always present; general colour dusky black. Frequents swampy grounds in the forests and dense jungles of Tenasserim.

127. *Ceratorhinus crossii*, GRAY.—The Ear-fringed Rhinoceros.

Of a pale clay colour ; larger with a smoother skin and covered with longer and less bristly hair (brown as seen in the mass) than the following; ears conspicuously fringed with long hair; tail

largely tufted at the end; the hide is comparatively thin, and is neither tesselated nor tuberculated, nor does it form a coat of mail, but there is one great groove behind the shoulder blades and a less conspicuous crease on the flank which does not extend upwards to cross the loins, and there are also slight folds on the neck and at base of the limbs; skin hairy throughout. A smaller horn behind the first. Arakan and Tenasserim.

128. *C. sumatrensis*, BELL.—(Kyan-shaw, *Burm.*).

This is the ordinary Two-horned Rhinoceros of Tenasserim. How far northward its range extends has not been ascertained. According to Jerdon it has been shot near Sandoway in Arakan. It is much smaller than the preceding, with a harsh and rugose skin, which is black and clad with bristly black hairs; the ears less widely separated at the base, and filled internally with black hairs; the muzzle anterior to the nasal horn much broader; and the tail conspicuously longer, tapering, and not tufted at the end. Horns attain a considerable length and curve but slightly backwards.

Order.—SIRENIA.

Nostrils in upper lip; two pectoral mammæ; no hind limbs; anterior limbs in the form of fins or flappers.

Family.—**Halicoridæ.**

Pectoral fins without claws; caudal fin lunate, broad.

129. *Halicore dugong*, ERXLEBEN.—The Malayan Dugon.

Skin uniform blueish, sometimes blotched with white beneath or pale fulvous with white under parts; eyes very small; incisors nearly concealed; a few scattered bristles on the body. Mergui archipelago.

Family.—**Manidæ.**

Pangolins.

130. *Pangolinus leucurus*, BLYTH.—The Scaly Ant-eater (Theng-khwe-khyat, *Burm.*).

Ranges from Arakan to Mergui. Body and tail covered with large, imbricate, horny scales; tail long; tongue round, exsertile; ears small, indistinct; all feet with five toes; no teeth. It is strictly nocturnal and feeds almost exclusively on ants. In walking the back is arched and the anterior surface of the fore-feet is bent over and brought into contact with the ground; its progress is very slow.

CHAPTER XVII.

ORNITHOLOGY.

[BY EUGENE W. OATES, EXECUTIVE ENGINEER, D. P. W.]

With a considerable portion of the country situated within the tropics, with its immense seacoast line and with a land frontier bordering on such interesting countries as China, Siam and Malayana, Burma offers attractions to the ornithologist which few other countries can hold out. The number of known Burmese species of birds exceeds that of the whole of Europe by more than a hundred, while the number is more than half that found in the whole continent of India from the Himalayas to Ceylon and from Scinde to Assam. And yet the list is very far from complete. With an increased number of observers the list would, undoubtedly, be increased to one thousand species.

Up to within a few years ago the path of the ornithologist in Burma was beset with difficulties. He might collect and accumulate specimens; the pleasure of identifying the species was denied him. What little had been written on the subject was scattered through numerous volumes, too bulky for an amateur's library, too costly for those whose only aim was relaxation from official duties. This state of things exists no longer. With the late Dr. Jerdon's "Birds of India" and Mr. Allan Hume's periodical "Stray Feathers", a mine of wealth for students of birds in Burma and India, every bird in the accompanying list can readily be identified.

A short review of the literature connected with the ornithology of Burma may not be out of place. The late Mr. Blyth, who for so many years occupied the position of Curator of the Calcutta Museum, found, soon after our occupation of Arakan and Tenasserim, a willing co-operator in Captain (now Sir Arthur) Phayre. The collections submitted from time to time to Mr. Blyth formed the subject of a series of notes and papers which enrich the pages of the Journal of the Asiatic Society of Bengal. To shew the assiduity and success with which Captain Phayre collected it is only necessary to point to one of his discoveries, named *Anthocincla phayrei* by Mr. Blyth, a bird so rare that specimens of it are unknown in Europe even now and for the re-discovery of which after an interval of some twenty years we are indebted to Mr. Davison.

The late Colonel Tickell collected birds in Tenasserim many years ago. His discoveries were by no means few and he named

most of the new species himself. His field appears to have been Eastern Tenasserim, especially among the higher mountains such as Moo-lai-yit, a locality which has only very recently been revisited by an ornithologist. His notes are published in the Journal of the Asiatic Society of Bengal. He left also at his death an elaborate manuscript work on birds, accompanied by coloured plates, which is now in the library of the Zoological Society of London.

Many years elapsed without any accession to our knowledge of the birds of Burma. In 1862 Dr. Jerdon visited Pegu on duty, being stationed at Thayetmyo. His visit appears to have been very short but resulted in the description of a few new species, notably of *Pyctorhis altirostris*, a bird which remained obscure for many years and was a short time ago almost simultaneously rediscovered in Pegu, Assam, the Bhutan Dhwars and Scinde, an instance of the caution necessary in generalizing on the distribution of birds. Mr. W. T. Blanford, also, visited the Irrawaddy Valley about the same time as Dr. Jerdon and communicated to the "Ibis" a list of the birds he had observed.

The late Captain Beavan visited Maulmain some years ago, and in addition to furnishing Lord Walden with materials for a short paper on some Tenasserim birds published in the Proceedings, Zoological Society, 1866, himself recorded numerous interesting observations in a series of papers in the "Ibis".

After a long silence Mr. Blyth, in 1866 and 1867, again took up his pen and wrote a commentary on Dr. Jerdon's "Birds of India" in which are embodied many observations made by the author when visiting Maulmain to recruit his health in 1861. This commentary is to be found in the "Ibis" in the volumes for the years above mentioned.

The late Lieutenant-Colonel Lloyd, Deputy Commissioner of Toung-ngoo, appears to have formed considerable collections of birds in that district and to have presented them to the late Marquis of Tweeddale, but no account of them has ever appeared.

Other notes by various naturalists may be found scattered through an immense series of volumes, a mass of disjointed fragments, inaccessible to all but those who have access to European libraries.

It was with the commencement of "Stray Feathers" that prominent attention was first paid to the birds of Burma. Mr. Hume single-handed, started the journal in 1873. The first volume was written almost entirely by himself. It was not long, however, before Mr. Hume found a large number of willing co-operators and the success of the work was fully secured.

Reverting again to the birds of Burma, the first important collection ever made in the country was formed by myself in the Thayet district and in the range of hills lying between Thayet and Toung-ngoo. This collection, consisting of about 300 species, was submitted in 1873 to Mr. Hume and on it he based a paper which appeared in Volume III. of "Stray Feathers". It was about this time that Mr. Hume deputed Mr. Davison to explore Tenasserim. Having collected vigorously for about five years in that division, the results of his labours, embracing observations on nearly 600 species, have been published in Volume VI. of "Stray Feathers". Not only has Mr. Davison added a vast number of birds to the avifauna of Burma but he has thoroughly investigated the habits of numerous species which, although well known in museums, had never before been observed in a wild state by any competent naturalist. This valuable contribution and the paper on the birds of Northern Pegu, referred to above, are in themselves sufficient to enable the Burman ornithologist to shape his labours and to identify almost all the specimens he is likely to meet with. Captain Bingham, of the Forest Department, is now at work in the wilder parts of Eastern Tenasserim whenever his duties permit, and Dr. Armstrong has explored the coast line, more especially in the neighbourhood of Rangoon, and a valuable contribution of his will be found in the 4th volume of "Stray Feathers".

Turning to others who have visited Burma, to leave it again unfortunately too soon, Captain Fielden, of the 21st Fusileers, may be mentioned as a zealous worker. When at Thayetmyo he made a collection of birds, some of which were sent to England, and nothing more has been heard of them, but others were sent to Mr. Hume and served materially to add to the value of the paper on the birds of Upper Pegu already mentioned.

Lieutenant Wardlaw Ramsay comes naturally last on the list because his work has been connected with the publication of Mr. Blyth's, unhappily, last and incomplete ornithological labour, "A Catalogue of the Birds of Burma". Mr. Blyth died before the catalogue recording the names of some 650 species could be published and it was ushered into the world under the editorship of the late Marquis of Tweeddale as a portion of the Journal of the Asiatic Society of Bengal for 1875. The editorial portion of the work consists of additions and corrections and of a record of the places where Mr. Ramsay met with the species under review.

Mr. Ramsay's line of country lay chiefly in those parts of Burma where his regiment, the 67th, was stationed from time to time and nothing remarkable would have presented itself under these circumstances had it not been that he had the oppor-

tunity given to him of accompanying the late Colonel Lloyd into Kareng-nee. A mountainous district like this, on the borders of unexplored countries, must naturally yield interesting discoveries. In addition to numerous novelties, Mr. Ramsay's collections contained many Himalayan species which were hardly to be looked for in such a low latitude.

Enough has been said to shew that whereas both Pegu and Tenasserim have been fairly well investigated with regard to birds, there remains Arakan with its lofty range of mountains; and here any labour spent in collecting will undoubtedly be well rewarded.

Any remarks on the distribution of the birds of Burma would be premature. Until the whole of South-eastern Asia has been thoroughly investigated, it is not possible even to hazard an opinion on the extension of the range of many species. A general review of the distribution, however, without aiming at any accuracy, may be attempted.

The accompanying catalogue embraces seven hundred and seventy-one species. Of these about four hundred and fifty are found on the Indian continent beyond the river Brahmaputra. One hundred of these are water birds which are found over almost the whole extent of Europe, Asia and Africa, and are nearly all winter visitors to Burma. Of the remaining three hundred and fifty Indian species, all land birds, about two hundred find their southern limit in Burma, about one hundred range through Burma and on into the Malayan peninsula, and about fifty extend laterally into China and Siam.

The second group may be termed Malayan, inhabiting the Malay peninsula and the large islands of Sumatra, Java and Borneo. About one hundred and fifty such species find their northern limit in Burma in addition to the hundred species already noticed which, occurring in Malayana, pass through Burma into India proper.

A third group, consisting of about fifty species, is found only in Burma, China and Siam. Discovered originally in the latter two countries, they have recently been found in Pegu and Tenasserim.

A fourth group consists of birds which have not hitherto been found outside the limits of British Burma; their number is about seventy. Year by year their number will undoubtedly decrease in proportion to the extent to which the adjacent countries are explored. Forty of these are now considered as Burmese only probably for the reason that they have been so recently discovered that there has been no time yet to rediscover them in other countries.

Up to a short time ago such birds as *Stachyrhis rufifrons*, *Pyctorhis altirostris*, *Oriolus tenuirostris*, *Lanius collurioides*, were looked upon as peculiarly Burmese, but the first species has been now found in the Bhutan Dhwars, the second in Scinde, and the two last in the borders of Assam.

It is evident, therefore, that no generalizations regarding the distribution of birds can yet be safely entered upon. The above remarks are merely intended to convey a rough idea on the subject. Sufficient has been established, however, to shew that the Burmese avifauna, taken in the aggregate, has nothing peculiar about it. As might be expected birds from India on the one hand and from Malayana on the other mingle together, the majority of the latter stopping short at Pegu and the majority of the former extending to Tenasserim and no further.

A few circumstances, however, are so far extraordinary as to deserve special mention. A number of species found in the valley of the Irrawaddy meet, in about the latitude of Poungday, a barrier which, it would seem, they do not care to cross. The common Partridge (*Francolinus sinensis*), *Chatarrhæa gularis*, *Coccystes jacobinus*, and *Passer flaveolus*, are examples. This is probably due to the fact that Poungday lies on the line separating the dry and wet regions of Pegu, but it is seldom that the limits of species are so exactly defined as in these instances. Another circumstance, pointed out long ago by Lord Tweeddale, is sufficiently interesting. Many species, among others the common Pea-fowl (*Pavo muticus*) *Megalurus palustris*, and *Crypsirhina varians*, are found abundantly in Burma; they are not found in the Malay peninsula at all; and they re-appear in Java. For some unaccountable reason they skip over a tract of country nearly 800 miles in length. Again, many species occurring in India are found only on the slopes of the Himalayas at considerable elevations; in Burma these same species are met with at the level of the sea.

Many of the birds recorded in the catalogue are to be found in Burma only during the dry weather. These winter migrants arrive generally in September and leave again in March or April. A few birds arrive in the hot weather and stay during a portion of the rains, but these form but a small number. Upwards of four hundred species breed in this country and are constant residents.

It is not to be expected that many English birds should be found so far to the east as Burma yet a few species will not fail to attract notice. The Swallow is identical with, or but slightly different from, the home species; the Kestril is not at all uncommon in Pegu during the cold weather; the Barn Owl is excessively

common and utters the same frightful screeches as in England, but owing to the want of suitable buildings it generally takes up its residence in hollow trees near houses; the Stone-chat, abundant everywhere in the dry weather, differs little from the English bird; several of the Pipit and Wagtail group are identical with birds at home, or recall them strongly to mind; the Cuckoo, a rare bird, has been found here and its note occasionally is heard; last, but most welcome, the Skylark of Burma is in all respects the equal of the English bird in song and differs little from it in appearance; it is abundant in the large plains lying between the Pegu and Tsit-toung rivers and may be heard in full song from November to March. Few persons are aware that the Skylark is to be found in the country yet in going from Rangoon to Toung-ngoo its note will not fail to be heard in the months above mentioned. Snipe, Plover and other water birds are in most cases the same as the English and will be noticed more in detail further on.

The game birds are numerous in species and individuals. A more extended notice of each species will be given in its proper place, suffice it here to remark that almost every kind of game bird found in Burma is abundant in suitable localities and the non-success of sportsmen in securing a large bag is more attributable to the density of the jungle than to the paucity of birds. Few patches of jungle are without their flock of Jungle-fowl and Mr. Davison records that near Hpa-pwon, when in company with Mr. Hildebrand, he saw the incredibly large number of *thirty* perched on *one* bent bamboo.

It is not likely that a close time will be necessary in Burma for many years, but sportsmen should as much as possible refrain from shooting game birds from March to July. Pheasants and partridges commence to breed in the former month and the young are not sufficiently grown to be fit for the table till July or August, while the death of the parents during the breeding season causes the loss of eight or ten birds, most game birds being in the habit of laying that number of eggs.

To give an account of the physico-geographical features of Burma and their influence on the avifauna would occupy pages and would probably convey but a feeble idea of the object in view. The difficulty of the case has been recognized by Mr. Allan Hume when recently treating the subject of the birds of Tenasserim. What he has said of this division will apply almost equally well to Pegu and Arakan and in quoting his words sufficient will have been said on the subject:—"Tenasserim * * * * a province (*division*) "of the most varied physical configuration, embracing every con- "ceivable variety of tropical and sub-tropical vegetation from the

"dismal mangrove swamps of the coast to the gloomy pine "forests of the loftiest mountains;—a province broken up by "innumerable rivers and interminable creeks, traversed in all "directions by complex ranges of lower and higher hills;—a pro-"vince in which an hour's walk may take you from the shimmering "velvet of the rice plains to the inaccessible precipices of the "limestone hill, from the feathery sea of the bamboo jungle "to the still recesses of the primeval evergreen forests;—a province "vast portions of which were not only as yet unvisited by any "European, but which, pathless and uninhabited, it seemed "impossible to visit;—a province teeming almost without parallel "with wild fruit and flowers and insect life, and an avifauna "worthy of this glorious profusion and this marvellous diversity "of physical surroundings". * * * *

The Vultures, comprising three species, are nowhere very numerous in Burma, except on the occasion of any dead animal being exposed to view. As the Burmese are in the habit of eating animals which die of disease not much food is available for vultures and it is only in the immediate neighbourhood of large villages that flocks of these birds are found. *Pseudogyps bengalensis* is by far the commonest. All three species are more abundant in India but probably do not extend into the Malay peninsula.

The diurnal birds of prey, comprising forty-three species, are mostly birds of universal distribution over the Old World. One species so far as is known is peculiar to Burma, *viz.*, *Poliohierax insignis*. Some dozen species reach Burma through the Malay peninsula and the others are found almost all over Asia and Europe, the limit of a few, however, not extending further west than India. That rare species *Machæramphus alcinus* has recently been procured at Ma-lee-won.

The Owls are many in species and it would appear few in individuals, but they are difficult birds to observe owing to their nocturnal habits. The Barn Owl, as stated above, is identical or nearly so with the English bird. *Carine pulchra* has been found near Thayetmyo but not elsewhere. Most of the species are found in India, a few only reaching us from the south.

Among the Thrush group there are only a few species which are familiar to residents in Burma. *Copsychus saularis*, or the Dayal of India, is common in every compound and garden; its song is sweet but of short duration and weak. The Shama (*C. macrura*) is also common in all thick jungles, but very shy and seldom seen; its song is very rich and powerful and it is undoubtedly the best singing bird of the East. The Blue Thrush (*P. cyaneus*), though not common, is known to most persons from its habit of

entering houses and sitting on a beam in silence for some moments at a time. The other species of thrushes are chiefly of wide distribution and are nowhere common enough in Burma to strike the attention of casual observers in the plains; in the hills they are commoner.

The Ant Thrushes are known by their short tails, long legs and brilliant plumage. Some are resident, but the majority are migratory, visiting Burma at the commencement of the rains. Though numerous these birds are not often seen as they frequent the thickest jungles, chiefly keeping to the ground. The call of all is a loud and melodious double whistle. *Pitta gurneyi*, recently discovered in Tenasserim by Mr. Davison, is of very rich colouration: a plate of this species is given in Vol. III. of "Stray Feathers".

The *Timeliidæ* or Bush-babblers are a family of small birds of skulking habits frequenting thick bush or grass jungle. From the nature of their habits they are observed with difficulty and are consequently seldom seen. The forty-five species in the catalogue are in all probability numerous in individuals but a few have only very recently been discovered. The only species which thrusts itself on the attention is *Chatarrhæa gularis*, a long-tailed bird which frequents the compounds at Thayetmyo. They live in small flocks and are peculiar from the fact that all the birds of one flock follow the action of the leading bird in a most amusing manner. In India their congeners of similar habits are called the "Sát bhái". Most if not all the species of bush-babblers have loud pleasing notes easily recognized when once heard. Burma is the great centre for this family, the number of species increasing as we proceed into Malayana.

All who have had occasion to traverse the Burmese forests must frequently have been startled by a loud chorus of laughter proceeding from birds somewhat larger than an ordinary thrush. These are named the *Garrulacidæ* or Laughing Thrushes. The greater number of species are common throughout the parts they frequent: *G. belangeri* is perhaps the best known; it is peculiar to Burma but closely allied to an Indian species also found in Arakan.

The Bulbuls have long been noted in Indian poetry for their fine song; but the Nightingale was probably the bird referred to for all the Indian species of bulbuls are songless though a few species possess pleasing notes. Most of the Burmese species are familiar birds, being denizens of our compounds and gardens. They are birds of rather dull plumage but of lively habits.

The Green Bulbuls on the other hand are birds of brilliant plumage, green predominating with, in one section, brilliant

patches of smalt blue on the wing. They live entirely on trees, with the foliage of which their plumage assimilates so well that the birds are with difficulty seen.

The Irenas are represented by one sole species, the male of which is, perhaps, one of the most beautiful birds of the East. The lower plumage is a deep velvety black and the whole upper surface of the most brilliant cobalt blue.

The Orioles are well-known birds with their yellow plumage and mellow notes. One species, *O. traillii*, is a departure from the rule and is clothed in maroon. It restricts itself to forests and is not often observed.

The Swallow Shrikes have only one representative in Burma. It is numerous and in clear evenings many thousands may, in some places, be seen hawking in the air like swallows, from which, however, they are easily separated by their very different shape and straighter flight.

The Wood Shrikes are birds of very sombre colours, and as they inhabit forests they are not often seen by the casual observer. A few species are, as far as is at present known, peculiar to Burma but others range throughout India.

The Minivets, small birds of brilliant scarlet plumage, the largest of which is called "Prince-bird" by the Burmese, are mostly common in well-wooded districts, going about in small flocks. The females are yellow where the males are scarlet. They have no song but they are, taken as a family, the most beautiful of Burmese birds.

The King Crows are the best known of all the common birds. Whether in the compound or in the forest these, conspicuous in their black plumage, do not fail to exhibit themselves as frequently as possible. The Edolius (*D. malabaroides*), with the outer tail feathers produced to a great length, is one of the most lovely songsters. Its rich notes are to be heard morning and evening throughout the year in all the better wooded parts of the country.

The Shrikes or Butcher birds are migratory, visiting Burma only at certain periods of the year. Two species (*L. collurioides* and *L. cristatus*) are very common.

The Paradise Fly-catcher belongs to the family of the *Muscicapidæ*. This extraordinary bird, with a body not larger than that of a sparrow, has a tail more than a foot in length. Other numerous species of Fly-catchers are found in the province, the majority being cold weather visitors. With few exceptions all are more or less brilliantly coloured.

The Stonechats are represented by *P. caprata*, a common bird which is constantly resident in Burma, and by three others which visit us in the dry weather.

The Tree Warblers, with one or two exceptions, are all winter visitors. They are mostly small green birds, frequenting mango and other trees infested with insects, and do not possess any song. The common Chiff-chaff of England belongs to this group. They are birds of very wide distribution and, notwithstanding their small size and apparently feeble flight, their migrations extend in many cases from the tropics to the arctic regions; it has been proved that some of the Indian species cross the higher ranges of the Himalayas in order to get to their breeding quarters. *P. viridipennis* appears not to have been found out of Burma; it has been found breeding on Moo-lai-yit.

The *Calomoherpidæ* include the Reed Warblers, birds of plain plumage and harsh notes which frequent marshy grass jungles. They are migratory, no species having yet been known to breed in Burma. Another section, the Tailor birds, are celebrated for the skilfulness employed in constructing their nests; they draw two or more leaves into juxtaposition and sew the edges together with vegetable fibres and then construct their nest in the receptacle thus formed. Two of the species (*O. sutorius* and *O. atrigularis*) are common throughout Pegu, being found chiefly in gardens and jungle near villages. Their note is very loud when compared with the size of the bird, which is very diminutive. The Prinias, allied species, are also small birds, in many cases with long tails. They construct their nests like the Tailor birds, but they frequent jungles remote from houses and are not so well known.

The *Paridæ* or Tomtits are represented in Burma by five species, none of which are as familiar as are their allies in Europe. *M. sultanea* is a magnificent Tit with a crest, and is coloured black and yellow; it is found only on the higher hills.

The *Leiotrichidæ* are an assemblage of birds of rather brilliant plumage and, in a great measure, with the habits of Tits. There are numerous species in Burma, many of them being found also on the Himalayas. Mr. Hume has recently discovered some new species on the Tenasserim mountains.

The *Dicæidæ* are similar to the Honey-suckers in habits, but differ from them in structure. They are the smallest of all known birds. *D. cruentatum*, with the upper surface, in the male, brilliant crimson, is one of the commonest birds of the country. It constructs a hanging nest of the size and shape of goose's egg, made of the most delicate vegetable fibres and with a small entrance at the side. The other species are all more or less common in suitable localities.

The *Motacillidæ* comprise the Wagtails and Pipits, and the Burmese species have all a very wide range, none being peculiar

to this country. All are migratory, visiting us in the dry weather only.

The Forktails are entirely birds of the hills, frequenting rocky water-courses. They have the habits of the Wagtails from which they differ in structure, and conspicuously so in the form of the tail, which is deeply forked.

The Finches constitute a large family of small grain-eating birds, comprising the Sparrows, Buntings, Munias and Weaver birds. The Sparrows are represented by four species. *P. montanus*, the common Tree Sparrow of England, is the common House Sparrow of Burma; *P. indicus*, equally common, is barely distinguishable from the House Sparrow of England; *P. flaveolus*, with a good deal of yellow in the plumage, is common near Thayetmyo; and *P. assimilis* is a very doubtful species discovered many years ago and not again met with. The Buntings are very numerous in individuals, arriving at the beginning of the dry weather and doing great damage to the rice crops. The Munias or Amadavats are small birds, very numerous and familiar. The Weaver birds are the best known birds of the East owing to their tameness and to the wonderful construction of their nests. The nest is of the shape of an inverted flask with a long tube or neck depending from it and serving as an entrance. In the rains few thatched houses in Burma are without a number of these singular ornaments, the birds suspending their nests from the eaves and caring little for the near approach of the inhabitants.

The *Corvidæ* or Crows are unfortunately but too well known as a nuisance and for their thieving propensities. The ordinary common House Crow is distinct from the Indian species, being almost entirely black whereas the other has a good deal of grey on the neck. The larger Jungle Crow is common and of wide distribution.

The *Garrulidæ* or Jays and Magpies are mostly common birds of conspicuous form or plumage. The best known is, perhaps, *C. varians*, a small black species with a long tail the end of which is widened out in the shape of a spatula. *Cissa sinensis* is a most gorgeous Jay, resplendent in green and red; the colours unfortunately fade soon after death. *Garrulus leucotis*, recently discovered near Toung-ngoo, recalls to mind strongly the English Jay.

The Mynahs are all resident in Burma and nearly every species is very common. The *Calornis* group consists of small tree Mynahs of brilliant black plumage. The Talking Mynahs (*Eulabes*) are frequently caged and learn to talk well: in a wild state they are found chiefly on the hills in thick forest. *Amp. coronatus* is of rather a large size, black with brilliant yellow marks, and is rare. The *Sturnia* group is chiefly composed of jungle species, whilst *Acri-*

dotheres comprises the familiar house species. *St. superciliaris*, or the Pied Mynah, is the commonest of all.

The *Certhiidæ*, containing the Tree-creepers and Nuthatches, comprise birds which are not frequently seen by casual observers. The Burmese Nuthatch does not differ much from the English bird.

The *Nectariniidæ* or Honey-suckers form a very extensive group of small but lovely birds, the majority of which are very common. Though equally brilliant with the Humming birds of America they differ much from them in structure. The two families have no connection with each other. The Humming birds are not found out of America, nor are the Honey-suckers found outside the limits of the Old World. The Honey-suckers of Burma build very beautiful nests, pear-shaped, with a porch over the entrance at the side, and the whole exterior of the nest is covered with lichens, moss, cobwebs and pieces of bark.

Of the *Hirundinidæ*, or Swallows, the first on the list (*H. gutturalis*), the common Swallow of Burma, differs so slightly from the English bird that it is very doubtful whether they are distinct. It is found in this country all the year round, but no indications of its breeding here have been discovered. The other species are more or less common and their range extends to distant parts.

The Larks (*Alaudidæ*) are very local in their distribution in Burma. As already stated, the Skylark, a very similar bird to the English Lark, is found in the plains of Lower Pegu. The other three species are not noted for their song.

The Hoopoos (*Upupidæ*) are represented by one species only, peculiar to Burma. It is a well known and conspicuous bird with its variegated plumage and long crest.

The *Eurylæmidæ*, or Broad-bills, are very curious birds of very brilliant plumage and with the bill shaped like a boat. All the species are common in remote jungles, more especially on the hills.

The Parrots (*Psittacidæ*) are represented by eight species, six belonging to the genus *Palæornis* with very long tails and two to other genera with short square tails. *P. nipalensis* is the largest, coloured a brilliant green with a red spot on each wing. The other species are also mostly green. All are common in suitable places.

The *Picidæ* or Wood-peckers are the most numerous group of birds in Burma. Of the thirty-three species found in the country very few only are confined to Burma, the others being of wide distribution. *Mull. pulverulentus*, of a slate colour, is the largest Wood-pecker found in the East. Some of the species found in Tenasserim are very brilliantly coloured and extend down to Java and Borneo.

Among the most curious of birds are the Barbets (*Megalæmidæ*), birds of green plumage chiefly, with large thick bills. Their note,

which is incessantly heard in the jungles and even in compounds, is very loud and monotonous. The Common Tinker bird (*X. hæmacephalus*) is the best known and its note, resembling the noise caused by a hammer striking metal, is heared in all localities.

The Cuckoos (*Cuculidæ*) are a very numerous group of birds well represented in Burma by twenty-four species. The common English Cuckoo has been occasionally met with. Other species, all characterized by peculiar notes, are pretty common. Most of the species extend into the Malay peninsula and a smaller number into India.

The common Roller, or as it is commonly called the Jay, is the representative species of the *Coraciidæ*. They are birds far removed from Jays in structure. The Roller is a very common bird, being found in all parts of the country. It differs from the Indian species. The other species (*E. orientalis*) is comparatively scarce.

The *Trogonidæ* or Trogons are the most splendid birds in the world. The eastern species are not so beautiful as some from Central America but they are, nevertheless, sufficiently gorgeous. The three Burmese birds are tolerably common in thick forests in suitable places. The plumage is very loose and it is difficult to preserve specimens.

The Night-jars (*Caprimulgidæ*) are oftener heard than seen. They seldom come out of the forest till after sunset. The last species on the list (*L. cerviniceps*) is a magnificent bird, the largest of the family; in addition to the usual beautiful plumage of the Night-jars it is provided with long ear tufts or horns; it is common in many places, flying about in large parties in search of insects.

Notwithstanding the immense powers of flight possessed by the Swifts (*Cypselidæ*) all the Burmese species are peculiar to India and Eastern Asia. They are not very abundant anywhere and some few species are rare. The Common Palm Swift is perhaps the best known.

The Burmese species of Bee-eaters (*Meropidæ*) are almost all of wide distribution, extending to India or even further west. They are common birds. The small species (*M. viridis*) is familiar to all residents in this country, hawking about after insects at all hours of the day.

Few birds are more gorgeously coloured than the Kingfishers (*Alcedinidæ*). There are many species, the pied one (*C. rudis*) being of most frequent occurrence. *Ceyx tridactyla*, remarkable as possessing three toes only on each foot, is a lovely little bird of the most brilliant lilac colour and not so large as a Sparrow. Other species are distributed over the province and few can be called rare.

The *Bucerotidæ*, or Horn-bills, are well represented in the province by nine species, all remarkable for their tremendous bills of curious shape. Their habits when nesting are well known: when the female is ready to lay she takes up her position in the nest, which is placed in a large cavity of a tree; the male then plasters up the opening leaving a slit only sufficiently large to enable the female to put her bill out for food which the male brings assiduously; the female is not allowed to leave the nest till the young are hatched. The remarkable species of Horn-bill are *B. comatus*, distinguishable by its large crest of white feathers, and *R. vigil*, which has the bill solid throughout.

Columbidæ, or Pigeons and Doves, are represented by twenty-one species. The Fruit Pigeons, *Toria*, *Crocopus* and *Osmotreron*, are well known and are well worthy of being shot for food in the jungle; there are few fruit-bearing trees in the province which are not a resort for one or other of the species. *Carpophaga ænea*, the Imperial Pigeon, is the largest of the commoner members of the family. The birds of the genus *Macropygia* are Doves with very long tails and are rare. The Bronze Dove (*C. indica*) is the most beautiful of the family, and the common Doves (*Turtur*) are too well known to require mention. Only two species of Pigeons are peculiar to Burma, the others being of tolerably wide distribution.

The next family of birds, the Pheasants (*Phasianidæ*), requires more extended mention than the others have received. The Peacock, as is well known, differs from the Indian bird not only in colouration but by having the crest composed of feathers with distinct webs, while the Indian Peacock has the feathers with the shaft naked and terminating only in a feathered tip. The Argus Pheasant, so well known in museums, has seldom or ever been seen in a wild state till very recently when Mr. Davison found it common in South Tenasserim. He thus describes a curious habit of the bird:—"They live quite solitary, both males and females; every "male has his drawing-room, of which he is excessively proud, and "which he keeps scrupulously clean. They haunt exclusively the "depths of the evergreen forests, and each male chooses some open "level spot—sometimes down in a dark, gloomy ravine, entirely "surrounded and shut in by dense cane brakes and rank vegeta-"tion, sometimes on the top of a hill when the jungle is com-"paratively open—from which he clears all the dead leaves and "weeds for a space of six or eight yards square until nothing but "the bare clean earth remains, and thereafter he keeps this place "scrupulously clean, removing carefully every dead leaf or twig "that may happen to fall on it from the trees above. * * * * Except

"in the morning and evening, when they roam about to feed and "drink, the males are always to be found at home, and they roost "at night on some tree quite close by." The Peacock Pheasant (*P. chinquis*), the next on the list, is found commonly in Arakan and less frequently in Tenasserim. From the peculiar colouration of its plumage it cannot be confounded with any other species in Burma and need not, therefore, be described. The next bird is the large Fire-backed Pheasant of Tenasserim; it may be distinguished by its back being of a brilliant metallic chestnut colour and by its very large size.

The next three species are termed Silver Pheasants, that is pheasants the upper plumage of which is marked with narrow wavy lines of black and white. *G. lineatus* occurs all over Pegu and Tenasserim; *G. cuvieri* occurs only in Arakan. Both these species have the wavy lines on the upper plumage transverse to the shaft of the feathers, and while *G. lineatus* is streaked with white below *G. cuvieri* is entirely black on the lower surface. *G. crawfurdi*, on the other hand, has the lines on the upper plumage not transverse to the shafts but more or less parallel to them and very coarse, the tail also is much whiter. This species is rare and has been met with once in Tenasserim. The bird was first discovered at Bha-maw. The Jungle-fowl, the last on the list, is too common and well known to need description.

The *Tetraonidæ*, or Partridges and Quail, are fairly well represented in the province. *Francolinus sinensis* is the common partridge of Thayetmyo, extending into Upper Burma and China. It is boldly marked and cannot be confounded with any other partridge of Burma. The birds of the genus *Arboricola* frequent the thickest jungles in the depths of the hills; they are partridges with twelve feathers in the tail, whereas *Francolinus* possesses fourteen. The plumage of all is very beautiful. The species may be distinguished by the following characters, as pointed out by Mr. Hume:—

Feathers of the upper back and interscapulary region barred or fringed with black.	Breast uniform.	*brunneopectus.*
	Breast barred.	*chloropus.*
Feathers of the upper back and interscapulary region unbarred and unfringed.	Lower margin of rufous of throat defined by a black line.	*rufigularis.*
	Lower margin of rufous of throat meeting grey of breast without any intervening black line.	*intermedia.*

Feathers of the back and interscapulary region freckled and mottled with darker brown.	Chin and throat white, spotted with black.	*charltoni.*

Caloperdix oculea is a rare species found in Tenasserim and Malacca: it is a lovely partridge with the whole lower surface bright chestnut, the flanks spotted with black. *Rollulus roulroul* or the Crested Partridge is common in S. Tenasserim; the male has a long crest and a tuft of long hairs on the forehead, the female possessing only the latter; the hind toe is without a claw, a feature which distinguishes it at once from all other partridges. There are five species of quail in the country but it is only in a few places where any are sufficiently abundant to afford sport. *Coturnix communis*, the common European quail, and *C. coromandelicus*, the Black-breasted Quail, are both somewhat rare. *Excalfactoria sinensis*, or Blue-breasted Quail, is common during the rains. The above three species differ from the next two by possessing a hind toe. *Turnix plumbipes* and *T. maculosus*, Bustard Quails, are without a hind toe. The former is common throughout the country, the latter rare.

There are two species of *Glareolidæ* or Swallow-plovers. *G. orientalis* is migratory, arriving in February; and *G. lactea* is a permanent resident.

The *Charadriidæ*, or Plovers, are well known birds of wide distribution over the Old World. The only species peculiar to Burma is *Sarc. atrinuchalis*, a common bird known to Europeans as the "Did he do it" and to Burmese as the "Tee-tee-doo."

The Turn-stones (*Hæmatopodidæ*) are sea-coast birds. There are two species, the common Turn-stone and the Oyster-catcher, both found in England.

The *Scolopacidæ* or Snipes are largely represented in Burma during the dry weather. They include the snippets and other similar birds. The Woodcock has been met with a few times. The Jack-snipe is rare. The Pintailed and the common English snipe both occur, the former being the species usally bagged by sportsmen in Burma; the two species are easily distinguished by the shape of the tail feathers, the pintail having the lateral feathers rigid and barbless. *Pseudoscolopax semipalmatus* has the bill of a snipe and the plumage of a godwit. It is extremely rare. *Eurynorhynchus pygmæus*, a snippet with a spatula-shaped bill, is a sea-coast bird of very rare occurrence. The other species are all common and require no special mention.

The *Rallidæ*, or Water-hens, are numerous in species and individuals, the exception being *Podica personata*, a water-hen of bluish

plumage and large size; each of its toes is furnished with lobes somewhat like a coot: it is very rare and when found not easy to procure.

Jacanas (*Parridæ*), of which there are two species, are known by their extremely long toes and claws, which enable them to walk over weeds on water. *Parra indica* is very common in all swamps.

The Heron family (*Ardeidæ*) is very numerous. Nearly all of them are found all over the continent of Asia. The white herons are the best known from their familiarity. They breed in clumps of trees even in the middle of large towns. *Herodias alba* is the species which breeds so abundantly in Rangoon.

The Storks (*Ciconiidæ*) include the Adjutants. The common Calcutta species, *L. giganteus*, visits Burma in October for the purpose of nesting. Many thousands of these birds breed on high trees in the forests north of Pa-gaing, to the West of the Tsit-toung in the Shwe-gyeng district a short distance inland from Myit-kyo. The other species of storks though numerous are not so well known.

Tantalidæ or Ibises are nowhere very common in Burma, with the exception of the White Ibis (*T. melanocephalus*), which is found in large flocks in all the swampy plains of Lower Pegu.

The sole representative of the Cranes (*Gruidæ*) is the Sarus. It is widely spread and tolerably common in retired spots.

The Pelicans (*Pelecanidæ*), the names of which are in great confusion, are represented by two species: one (*P. philippensis*) is excessively common, the other somewhat rare.

Of the Ducks and Geese (*Anatidæ*) the Black-backed Goose is common in some places, notably in the Eng-ma swamp north of Poungday. The Cotton Teal and two species of Whistling Teal are also common throughout the year. *Casarca rutila*, a large red goose, the Heng-tha (sometimes written Hanza, the Royal bird of the Pegu kingdom) of the Burmese, visits the country in the cold weather and is found on all the sandbanks of the larger rivers. The Pintail Duck (*D. acuta*) occurs in large flocks in the Eng-ma swamp during the dry weather. The Wigeon and the common English teal are also to be met with, but not commonly. A few other species of duck and teal occur occasionally but not in sufficient numbers to afford sport.

The *Podicipidæ*, or Grebes, are represented by one species only, the Dabchick of England. It is common on all ponds and jheels.

The Cormorants (*Graculidæ*) form a family of birds extensively distributed over the world and represented in Burma by four species, all of which are common.

The *Laridæ*, or Gulls, are all sea-birds, one or two species being occasionally found in inland waters. The Brown-headed Gull

(*X. brunneicephala*) is excessively common at the mouths of all large rivers. *Lestris pomarhinus* is recorded on the evidence of the late Mr. Blyth.

The Terns, or *Sternidæ*, are birds of graceful shape which, whether maritime or terrestrial, are all more or less common. Some species live entirely at sea and others are found all over the province. The curious Scissors-bill, the upper mandible of which is shorter than the lower, is well known to all who interest themselves about birds.

A LIST OF THE BIRDS OF BRITISH BURMA.

A reference is given in every case either to Jerdon's "Birds of India" or to "Stray Feathers", where a full description of the plumage may be found. The former work will be referred to as "J. B. I.", and the latter as "S. F." In the case of Jerdon's "Birds of India" the figures refer to the numbers, and in the case of "Stray Feathers" to the volumes and pages.

Vulturidæ—(Vultures).

1	Gyps indicus : Scop.	... J. B. I.	4.
2	Pseudogyps bengalensis : Gm.	... ,,	5.
3	Otogyps calvus : Scop.	... ,,	2.

Falconidæ—(Diurnal birds of prey).

4	Circus melanoleucus : Forst.	... J. B. I.	53.
5	——— pygargus : Lin.	... ,,	50.
6	——— macrurus : Gm.	... ,,	51.
7	——— æruginosus : Lin.	... ,,	54.
8	Astur trivirgatus : Tem.	... ,,	22.
9	—— poliopsis : Hume	... S. F., II.	325.
10	—— soloensis : Horsf.	... ,, VI.	8.
11	Accipiter nisus : Lin.	... J. B. I.	24.
12	——— virgatus : Reinw.	... ,,	25.
13	Butes plumipes : Hodg.	... ,,	47.
14	Aquila nipalensis : Hodg.	... ,,	27.
15	——— clanga : Pall.	... ,,	28.
16	Nisaëtus pennatus : Gm.	... ,,	31.
17	Neopus malayensis : Reinw.	... ,,	32.
18	Spizaëtus alboniger : Bl.	... S. F., VI.	12.
19	——— caligatus Raffl.	... J. B. I.	34.
20	Spilornis cheela : Lath.	... ,,	39.
21	——— melanotis : Jerd.	... S. F., VI.	14.

22	Butastur teesa : Frankl.	... J. B. I.	48.
23	——— liventer : Temm.	... S. F., III.	31.
24	——— indicus : Gm.	... ,, VI.	19.
25	Haliaëtus leucogaster : Gm.	... J. B. I.	43.
26	——— leucoryphus : Pall.	... ,,	42.
27	Haliastur indus : Bodd.	... ,,	55.
28	Milvus melanotis : Schleg.	... S. F., I.	160.
29	——— affinis : Gould	... ,, I.	160.
30	——— govinda : Sykes	... J. B. I.	56.
31	Elanus cæruleus : Desf.	... ,,	59.
32	Machæramphus alcinus : Westerm.	... S. F., III.	269.
33	Pernis ptilonorhynchus : Steph.	... J. B. I.	57.
34	Baza lophotes : Cuv.	... ,,	58.
35	—— sumatrensis : Lafresn.	... S. F., VI.	25.
36	Microhierax cærulescens : Lin.	... J. B. I.	20.
37	——— fringillarius : Drap.	... S. F., VI.	5.
38	Poliohierax insignis : Wald.	... ,, III.	20.
39	Falco communis : Gm.	... J. B. I.	8.
40	—— peregrinator : Sundev.	... ,,	9.
41	—— severus : Horsf.	... ,,	14.
42	Cerchneis tinnunculus : Lin.	... ,,	17.
43	——— amurensis : Radde	... ,,	19.
44	Pandion haliaëtus : Lin.	... ,,	40.
45	Polioaëtus ichthyaëtus : Horsf.	... ,,	41.
46	——— humilis : S. Mull. et Schleg.	... S. F., V.	129.

Strigidæ—(Nocturnal birds of prey).

47	Ketupa ceylonensis : Gm.	... J. B. I.	72.
48	——— javanensis : Less.	... S. F., IV.	301.
49	Bubo bengalensis : Frankl.	... J. B. I.	69.
50	—— coromandus : Lath.	... ,,	70.
51	—— nipalensis : Hodg.	... ,,	71.
52	—— orientalis : Horsf.	... S. F., VI.	31.
53	Scops pennatus : Hodg.	... J. B. I.	74.
54	—— lettia : Hodg.	... ,,	75.
55	—— lempiji : Horsf.	... S. F., VI.	35.
56	—— sagittatus : Cass.	... ,, V.	247.
57	Carine pulchra : Hume	... ,, I.	469.
58	Ninox hirsutus : Cuv. et Temm.	... J. B. I.	81.
59	Glaucidium brodiei : Burt.	... ,,	80.
60	——— radiatum : Tick.	... ,,	77.
61	——— cuculoides : Vig.	... ,,	79.
62	Asio accipitrinus : Pall.	... ,,	68.
63	Syrnium seloputo : Horsf.	... S. F., VI.	28.
64	Strix flammea : Lin.	... J. B. I.	60.
65	—— candida : Tick.	... ,,	61.
66	Phodilus badius : Horsf.	... ,,	62.

Turdidæ—(Thrushes).

67	Myiophoneus temminckii : Vig.	... J. B. I.	343.
68	——— eugenei : Hume	... S. F., I.	475.

69	Zoothera marginata : Bl.	...	S. F. I. VI.	246.
70	Petrocossyphus cyaneus : Lin.	...	J. B. I.	351.
71	——————— solitarius : P.L.S. Mull.	...	S. F., VI.	250.
72	Orocetes cinclorhynchus : Vig.	...	J. B. I.	353.
73	———— erythrogaster : Vig.	...	,,	352.
74	Geocichla citrina : Lath.	...	,,	355.
75	Turdus pallidus : Gm.	...	S. F., VI.	253.
76	——— sibiricus : Pall.	...	,,	255.
77	——— obscurus : Gm.	...	,,	251.
78	Oreocincla mollissima : Bl.	...	J. B. I.	370.
79	———— dauma : Lath.	...	,,	371.
80	Copsychus saularis : Lin.	...	,,	475.
81	———— musicus : Raff.	...	S. F., VI.	333.
82	Cittocincla macrura : Gm.	...	J. B. I.	476.
83	Oreicola jerdoni : Bl.	...	,,	487.
84	Ruticilla aurorea : Pall.	...	,,	500.
85	Larvivora cyane : Pall.	...	S. F., VI.	335.
86	Calliope kampschatkensis : Gm.	...	J. B. I.	512.
87	Cyanecula suecica : Lin.	...	,,	514.
88	Rhyacornis fuliginosa : Vig.	...	,,	505.
89	Chœmarrhornis leucocephalus : Vig.	...	,,	506.
90	Myiomela leucura : Hodg.	...	,,	477.

Pittidæ—(Ant-Thrushes).

91	Hydrornis nipalensis : Hodg.	...	J. B. I.	344.
92	———— oatesi : Hume	...	S. F., I.	477.
93	Pitta cærulea : Raff.	...	,, III.	321 *n.*
94	—— moluccensis : P.L.S. Mull.	...	,, III.	106.
95	—— megarhyncha : Schleg.	...	,, VI.	242.
96	—— cyanea : Bl.	...	,, III.	107.
97	—— cucullata : Hartl.	...	J. B. I.	346.
98	—— gurneyi : Hume	...	S. F., III.	296.
99	—— coccinea : Eyton	...	,, VI.	511.
100	Anthocincla phayrei : Bl.	...	,, III.	109.

Timeludæ—(Bush-babblers).

101	Turdinulus roberti : God. Aust. et Wald.	...	S. F., IV.	218.
102	Pnoepyga squamata : Gould.	...	J. B. I.	329.
103	———— pusilla : Hodg.	...	,,	330.
104	Brachypteryx cruralis : Bl.	...	,,	338.
105	————— nipalensis : Hodg.	...	,,	336.
106	Paradoxornis gularis : Horsf.	...	,,	374.
107	————— ruficeps : Bl.	...	,,	375.
108	Pyctorhis sinensis : Gm.	...	,,	385.
109	———— altirostris : Jerd.	...	S. F., V.	249.
110	Trichastoma abbotti : Bl.	...	J. B. I.	387.
111	————— minus : Hume	...	S. F., II.	535.
112	————— rubiginosum : Wald.	...	,, III.	404.
113	Alcippe nipalensis : Hodg.	...	J. B. I.	388.
114	——— phayrei : Bl.	...	S. F., VI.	260.

115	Stachyrhis crispifrons : Bl.	... S. F., V.	87.
116	——— brevicaudatus : Bl.	... ,, VI.	262.
117	——— guttatus : Bl.	... ,, V.	252.
118	——— nigriceps : Hodg.	... J. B. I.	391.
119	——— ruficeps : Bl.	... ,,	393.
120	——— rufifrons : Hume	... S. F., I.	479.
121	——— chrysea : Hodg.	... J. B. I.	394.
122	——— assimilis : Wald.	... S. F., V.	56.
123	Mixornis rubicapilla : Tick.	... J. B. I.	395.
124	——— gularis : Horsf.	... S. F., VI.	266.
125	Timelia bengalensis : God. Aust.	... J. B. I.	396.
126	Cyanoderma erythropterum : Bl.	... S. F., VI.	269.
127	Malacopteron magnum : Eyton	... ,,	270.
128	——— ferruginosum : Bl.	... ,,	273.
129	——— magnirostris : Moore	... ,,	274.
130	Drymocataphus nigrocapitatus : Eyton	... ,,	275.
131	Pellornium tickelli : Bl.	... S. F., I.	299 *n.*
132	——— subochraceum : Swinh.	... ,,	298.
133	Pomatorhinus albigularis. Bl :	... ,, VI.	281.
134	——— ferruginosus : Bl.	... J. B. I.,	401.
135	——— olivaceus : Bl.	... S. F., V.	137.
136	——— nuchalis : Tweeddale	... ,, VI.	284.
137	——— erythrogenys : Vig.	... J. B. I.	405.
138	——— ochraceiceps : Wald.	... S. F., III.	282.
139	——— phayrei : Bl.	... ,, VI.	279.
140	——— hypoleucus : Bl.	... ,, V.	32.
141	Megalurus palustris : Horsf.	... J. B. I.	440.
142	Chatarrhæa earlii : Bl.	... ,,	439.
143	——— caudata : Dumeril	... ,,	438.
144	——— gularis : Bl.	... S. F., III.	124.
145	Gampsorhynchus rufulus : Bl.	... J. B. I.	384.

Garrulacidæ—(Laughing Thrushes).

146	Garrulax leucolophus : Hardw.	... J. B. I.	407.
147	——— belangeri : Less.	... S. F., III.	122.
148	——— sinensis : Scop.	... ,, VI.	289.
149	——— albogularis : Gould	... J. B. I.	411.
150	——— pectoralis : Gould	... ,,	412.
151	——— moniliger : Hodg.	... ,,	413.
152	——— strepitans : Tick.	... S. F., VI.	288.
153	Trochalopterum melanostigma : Bl.	... ,, VI.	291.
154	Actinodura ramsayi : Wald.	... ,, III.	404.
155	Sibia picaoides : Hodg.	... J. B. I.	430.
156	—— melanoleuca : Bl.	... S. F., VI.	293.

Pycnonotidæ—(Bulbuls).

157	Hypsipetes psaroides : Vig.	... J. B. I.	444.
158	——— concolor : Bl.	... S. F., V.	109.
159	——— mc'clellandi : Horsf.	... J. B. I.	447.
160	——— tickelli : Bl.	... S. F., VI.	296.
161	——— malaccensis : Bl.	... ,,	298.

162	Hemixus flavala : Hodg.	... J. B. I.	448.
163	——— hildebrandi : Hume	... S. F., II.	508.
164	——— davisoni : Hume	... „ V.	111.
165	Alcurus striatus : Bl.	... J. B. I.	449.
166	Trachycomus ochrocephalus : Gm.	... S. F., I.	455.
167	Criniger flaveolus : Gould	... J. B. I.	451.
168	——— griseiceps : Hume	... S. F., I.	478.
169	——— ochraceus : Moore	... „ VI.	301.
170	——— phaiocephalus : Hartl.	... „ „	302.
171	——— tristis : Bl.	... „ „	303.
172	Tricholestes criniger : Hay	... „ „	304.
173	Ixos flavescens : Bl.	... „ „	306.
174	—— finlaysoni : Strickl.	... „ „	307.
175	—— davisoni : Hume	... „ III.	301.
176	—— blanfordi : Jerd.	... „ „	125.
177	—— analis : Horsf.	... „ I.	457.
178	—— pusillus : Salvad.	... „ VI.	312.
179	—— plumosus : Bl.	... „ „	309.
180	—— brunneus : Bl.	... „ „	312.
181	Rubigula flaviventris : Tick.	... J. B. I.	456.
182	Iole viridescens : Bl.	... S. F., VI.	315.
183	Ixidia cyaniventris : Bl.	... „ „	320.
184	Brachypodius melanocephalus : Gm.	... „ IV.	324.
185	——— cinereiventris : Bl.	... „ VI.	319.
186	Otocompsa emeria : Lin.	... J. B. I.	460.
187	Pycnonotus pygæus : Hodg.	... „	461.
188	——— nigropileus : Bl.	... S. F., III.	126 *n.*
189	——— atricapillus : Vieill.	... „ VI.	322.

Melliphagidæ—(Green Bulbuls).

190	Phyllornis chlorocephalus : Wald.	... S. F., III.	129.
191	——— hodgsoni : Gould	... J. B. I.	465.
192	——— hardwickii : Jerd. et Sel.	... „	466.
193	——— javensis : Horsf.	... S. F., VI.	324.
194	——— cyanopogon : Temm.	... „ „	325.
195	Ægithina typhia : Lin.	... J. B. I.	468.
196	——— lafresnayi : Hartl.	... S. F., V.	423.
197	——— viridissima : Temm.	... „ „	427.

Irenidæ—(Irenas).

198	Irena puella : Lath.	... J. B. I.	469.

Oriolidæ—(Orioles).

199	Oriolus indicus : Jerd.	... J. B. I.	471.
200	——— tenuirostris : Bl.	... S. F., III.	132.
201	——— melanocephalus : Lin.	... J. B. I.	472.
202	——— xanthonotus : Horsf.	... S. F., VI.	330.
203	——— traillii : Vig.	... J. B. I.	474.

Artamidæ—(Swallow Shrikes).

204	Artamus fuscus : Vieill.	... J. B. I.	287.

Campephagidæ—(Wood Shrikes).

205	Tephrodornis pelvica : Hodg.	... J. B. I.	263.
206	——————— ponticeriana : Gm.	... „	265.
207	Hyloterpe grisola : Bl.	... „	266.
208	Muscitrea cyanea : Hume	... S. F., V.	101.
209	Graucalus macei : Less.	... J. B. I.	270.
210	Volvocivora neglecta : Hume	... S F., V.	203.
211	——————— intermedia : Hume	... „ „	205.
212	——————— melaschista : Hodg.	... J. B. I.	269.
213	——————— avensis : Bl.	... S. F., III.	93.
214	——————— vidua : Hartl.	... „ V.	206.

Pericrocotidæ—(Minivets).

215	Pericrocotus cinereus : Lafres.	... S. F., V.	175.
216	——————— albifrons : Jerd.	... „ III.	96.
217	——————— peregrinus : Linn.	... J. B. I.	276.
218	——————— roseus : Vieill.	... „	275.
219	——————— solaris : Bl.	... „	274.
220	——————— brevirostris : Vig.	... „	273.
221	——————— neglectus : Hume	... S. F., V.	189.
222	——————— igneus : Bl.	... „ V.	190.
223	——————— elegans : McClell.	... „ III.	95.
224	——————— flammifer : Hume	... „ V.	195.

Dicruridæ—(King Crows).

225	Buchanga intermedia : Bl.	... ———————	———
226	——————— pyrrhops : Hodg.	... S. F., VI.	216.
227	——————— leucogenys : Wald.	... „ „	216.
228	——————— atra : Herm.	... J. B. I.	278.
229	——————— longicaudata : Hay.	... „	280.
230	Dicrurus annectans : Hodg.	... „	279.
231	Chaptia ænea : Vieill.	... „	282.
232	——————— picinus : S. Müll.	... S. F., VI.	218.
233	Bhringa remifer : Temm.	... J. B. I.	283.
234	Dissemurus malabaroides : Hodg.	... „	284.
235	——————— paradiseus : Lin.	... S. F., VI.	219.
236	Chibia hottentota : Lin.	... J. B. I.	286.

Laniidæ—(Shrikes).

237	Lanius tephronotus : Vig.	... J. B. I.	258.
238	——————— nigriceps : Frankl.	... „	259.
239	——————— collurioides : Less.	... S. F., III.	90.
240	——————— cristatus : Lin.	... J. B. I.	261.
241	——————— magnirostris : Less.	... S. F., VI.	203.
242	——————— lucionensis : Lin.	... „ II.	199.

Muscicapidæ—(Fly-catchers).

243	Hemipus obscurus : Horsf.	... S. F., VI.	209.
244	——————— picatus : Sykes	... J. B. I.	267.

245	Muscipeta affinis : Hay	... J. B. I.	289.
246	Philentoma velatum : Temm.	... S. F., VI.	224.
247	——— pyrrhopterum : Temm.	... ,, ,,	223.
248	Hypothymys azurea : Bodd.	... J. B. I.	290.
249	Leucocerca aureola : Less.	... ,,	292.
250	——— albicollis : Vieill.	... ,,	291.
251	——— javanica : Sparrm.	... S. F., I.	455.
252	Chelidorhynx hypoxantha : Bl.	... J. B. I.	294.
253	Culicicapa ceylonensis : Sws.	... ,,	295.
254	Butalis sibiricus : Gm.	... ,,	296.
255	——— latirostris : Raff.	... ,,	297.
256	——— ferrugineus : Hodg.	... ,,	299.
257	Stoporala melanops : Vig.	... ,,	301.
258	Cyornis rubeculoides : Vig.	... ,,	304.
259	——— olivaceus : Hume	... S. F., V.	338.
260	——— tickelli : Bl.	... J. B. I.	305 & 306.
261	——— vividus : Swinh.	... S. F., VI.	229.
262	——— magnirostris : Bl.	... J. B. I.	308.
263	Niltava sundara : Hodg.	... ,,	314.
264	——— macgrigoriæ : Burt.	... ,,	315.
265	——— grandis : Bl.	... ,,	316.
266	Anthipes moniliger : Hodg.	... ,,	317.
267	——— submoniliger : Hume	... S. F., V.	105.
268	Siphia strophiata : Hodg.	... J. B. I.	319.
269	——— erythaca : Jerd. et Bl.	... ,,	322.
270	Erythrosterna albicilla : Pall.	... ,,	323.
271	——— acornaus : Hodg.	... ,,	325.
272	——— maculata : Tick.	... ,,	326.

Saxicolidæ—(Stone-chats).

273	Pratincola caprata : Lin.	... J. B. I.	481.
274	——— indica : Bl.	... ,,	483.
275	——— leucura : Bl.	... ,,	484.
276	——— ferrea : Hodg.	... ,,	486.

Sylviidæ—(Tree Warblers).

277	Neornis flavolivacea : Hodg.	... J. B. I.	552.
278	——— assimilis : Hodg.	... S. F., VI.	351.
279	Phylloscopus fuscatus : Bl.	... J. B. I.	555.
280	——— magnirostris : Bl.	... ,,	556.
281	——— borealis : Blasius.	... S. F., VI.	352.
282	——— schwarzi : Radde	... ,, II.	505.
283	——— lugubris : Bl.	... J. B. I.	558.
284	——— seebohmi : Hume	... S. F., V.	335.
285	——— viridanus : Bl.	... J. B. I.	560.
286	——— tenellipes : Swinh.	... S. F., VI.	517.
287	——— plumbeitarsus : Swinh.	... ,, ,,	355.
288	——— coronatus : Temm. et Schl.	,, ,,	356.
289	——— trochiloides : Sund.	... J. B. I.	564.
290	——— superciliosus : Gm.	... ,,	565.

291	Phylloscopus proregulus : Pall.	... J. B. I.	566.
292	——— viridipennis : Bl.	... S. F., V.	330.
293	——— erochrous : Hodg.	... J. B. I.	568.
294	Cryptolopha burkii : Burt.	... ,,	569.
295	——— tephrocephala : Anderson	... S. F., III.	140.
296	Abrornis xanthoschistos : Hodg.	... J. B. I.	572.
297	——— superciliaris : Tick.	... ,,	574.
298	——— chryseus : Wald.	... S. F., V.	555.

Calamoherpidæ—(Grass creepers).

299	Acrocephalus stentoreus : H. et E.	... J. B. I.	515.
300	——— orientalis : Schl.	... S. F., III.	337.
301	——— dumetorum : Bl.	... J. B. I.	516.
302	——— agricolus : Jerd.	... ,,	517.
303	——— bistrigiceps : Swinh.	... S. F., VI.	338.
304	Arundinax ædon : Pall.	... J. B. I.	518.
305	Locustella lanceolata : Temm.	... S. F., VI.	339.
306	Urosphena squamiceps : Swinh.	... ,, ,,	343.
307	Horeites pallidipes : Blanf.	... ,, ,,	344.
308	——— sericea : Wald.	... S. F., V.	57.
309	Orthotomus sutorius : Forst:	... J. B I.	530.
310	——— coronatus : J. et Bl.	... ,,	531.
311	——— atrigularis : Temm.	... S. F., VI.	345.
312	——— ruficeps : Less.	... ,, ,,	346.
313	Prinia flaviventris : Deless.	... J. B. I.	532.
314	——— gracilis : Frankl.	... ,,	536.
315	——— hodgsoni : Bl.	... ,,	538.
316	——— beavani : Wald.	... S. F., III.	136.
317	——— rufula : God. Aust.	... ,, ,,	397.
318	——— rufescens : Bl.	... ,, ,,	136.
319	Cisticola cursitans : Frankl.	... J. B. I.	539.
320	Drymoeca longicaudata : Tick.	... ,,	544.
321	——— extensicauda : Swinh.	... S. F., III.	340.
322	——— blanfordi : Wald.	... ,, V.	57.
323	Suya crinigera : Hodg.	... J. B. I.	547.
324	—— erythropleura : Wald.	... S. F., V.	58.
325	—— superciliaris : Anderson	... ,, VI.	350.

Paridæ—(Tits).

326	Ægithaliscus erythrocephalus : Vig.	... J. B. I.	634.
327	Parus cæsius : Tick.	... ,,	645.
328	——— commixtus : Swinh.	... S. F., VI.	376.
329	Machlolophus spilonotus : Bl.	... J. B. I.	649.
330	Melanochlora sultanea : Hodg.	... ,,	650.

Leiotrichidæ—(Hill Tits).

331	Cutia nipalensis : Hodg.	... J. B. I.	612.
332	Leiothrix lutea : Scop.	... ,,	614.
333	Mesia argentauris : Hodg.	... ,,	615
334	Siva strigula : Hodg.	... ,,	616

335	Cochoa purpurea : Hodg.	... J. B. I.	607.
336	Pteruthius æralatus : Tick.	... S. F., VI.	368.
337	Allotrius intermedius : Hume	... „ V.	112.
338	Leioptila saturata : Wald.	... „ „	110.
339	Siva sordida : Hume	... „ „	104.
340	—— cyanuroptera : Hodg.	... „	617.
341	—— castaneicauda : Hume	... S. F., V.	100.
342	Minla castaneiceps : Hodg.	... J. B. I.	619.
343	Proparus dubius : Hume	... S. F., II.	447.
344	Ixulus humilis : Hume	... „ V.	106.
345	—— striatus : Bl.	... J. B. I.	625.
346	Yuhina gularis : Hodg.	... „	626.
347	Herpornis xantholeuca : Hodg.	... „	630.
348	Zosterops siamensis : Bl.	... S. F., VI.	375.
349	——— austeni : Wald.	... „ V.	56.
350	——— palpebrosus : Temm.	... J. B. I.	631.

Dicæidæ—(Flower peckers).

351	Dicæum cruentatum : Lin.	... J. B. I.	236.
352	——— trigonostigma : Scop.	... S. F., VI.	194.
353	——— chysorrhæum : Temm.	... J. B. I.	237.
354	——— erythrorhynchus : Lath.	... „	238.
355	——— olivaceum : Wald.	... S. F., III.	403.
356	Prionochilus maculatus : Temm.	... „ VI.	199.
357	——— modestus : Hume	... „ III.	298.
358	——— percussus: Temm.	... VI.	196.
359	Piprisoma agile : Tick.	... J. B. I.	240.

Motacillidæ—(Wagtails).

360	Pipastes maculatus : Hodg.	... J. B. I.	596.
361	——— trivialis : Lin.	... „	597.
362	Corydalla richardi : Vieill.	... „	599.
363	——— malayensis : Eyton	... S. F., VI.	366.
364	——— rufula : Vieill.	... J. B. I.	600.
365	——— striolata : Bl.	... „	601.
366	Anthus rosaceus : Hodg.	... „	605.
367	——— cervinus : Pall.	... S. F., II.	239.
368	Limonidromus indicus : Gm.	... J. B. I.	595.
369	Motacilla ocularis : Swinh.	... S. F., VI.	518.
370	——— alboides : Hodg.	... J. B. I.	590.
371	——— alba : Lin.	... ——	—
372	Calobates melanope : Pall.	... J. B. I.	592.
373	Budytes flava : Lin.	... S. F., VI.	363.
374	——— cinereocapilla : Savi.	... „ „	363.
375	——— calcarata : Hodg.	... J. B. I.	594.

Henicuridæ—(Forktails).

376	Henicurus guttatus : Gould	... S. F., III.	342.
377	——— leschenaulti : Vieill.	... „ V.	219.
378	——— frontalis : Bl.	... „ „	248.

379	Henicurus mmaculatus : Hodg.	... J. B. I.	585.
380	——— schistaceus : Hodg.	... ,,	586.
381	——— ruficapillus : Temm.	... S. F., VI.	361.

Fringillidæ—(Finches).

382	Citrinella fucata : Pall.	... J. B. I.	719.
383	Emberiza rutila : Pall.	... S. F., III.	158.
384	——— pusilla : Pall.	... J. B. I.	720.
385	——— aureola : Pall.	... ,,	723.
386	Melophus melanicterus : Gm.	... ,,	724.
387	Passer indicus : J. et S.	... ,,	706.
388	——— flaveolus : Bl.	... S. F., III.	156.
389	——— assimilis : Wald.	... ,, ,,	157.
390	——— montanus : Lin.	... J. B. I.	710.
391	Carpodacus erythrinus : Pall.	... ,,	738.
392	Munia rubrinigra : Hodg.	... ,,	698.
393	——— leuconota : Tem.	... ,,	701.
394	——— leucogastra : Bl.	... S. F., VI.	402.
395	——— acuticauda : Hogd.	... J. B. I.	702.
396	Lonchura subundulata : God. Aust.	... S. F., III.	398.
397	Erythrura prasina : Sparrm.	... ,, VI.	405.
398	Estrilda flavidiventris : Wall.	... ,, IV.	484.
399	Ploceus baya : Bl.	... S. F. VI.	398.
400	——— manyar : Horsf.	... J. B. I.	695.
401	——— bengalensis : Bl.	... ,,	696.
402	——— javanensis : Less.	... S. F., III.	154.

Corvidæ—(Crows).

403	Corvus macrorhynchus : Wagl.	... J. B. I.	660.
404	——— splendens : Vieill.	... ,,	663.
405	——— insolens : Hume	... S. F., II.	480.

Garrulidæ—(Jays).

406	Garrulus leucotis : Hume	... S. F., II.	443.
407	Urocissa magnirostris : Bl.	... ,, III.	144.
408	Cissa sinensis : Bodd.	... J. B. I.	673.
409	Dendrocitta rufa : Scop.	... ,,	674.
410	——— assimilis : Hume	... S. F., V.	117.
411	——— himalayensis : Bl.	... J. B. I.	676.
412	Crypsirhina varians : Lath.	... S. F., III.	146.
413	——— cucullata : Jerd.	... ,, ,,	147.
414	Platysmurus leucopterus : Tem.	... ,, VI.	387.
415	Platylophus ardesiacus : Cab.	... ,, ,,	380.

Sturnidæ—(Mynahs).

416	Sturnopastor superciliaris : Bl.	... S. F., III.	149.
417	Acridotheres tristis : Lin.	... J. B. I.	684.
418	——— fuscus : Wagl.	... ,,	686.
419	——— siamensis : Swinh.	... S. F., VI.	388.
420	Sturnia pagodarum : Gm.	... J. B. I.	687.

421	Sturnia malabarica : Gm.	... J. B. I.	688.
422	——— burmannica : Jerd.	... S. F., III.	150.
423	——— nemoricola : Jerd.	... ,, II.	480 *n.*
424	Calornis sturnina : Pall.	... ,, VI.	393.
425	——— affinis : Hay.	... ,, ,,	394.
426	——— chalybæus : Horsf.	... ,, ,,	394.
427	Saraglossa spiloptera : Vig.	... J. B. I.	691.
428	Eulabes intermedia : Hay	... ,,	693.
429	——— javanensis : Osb.	... S. F., VI.	396.
430	Ampeliceps coronatus : Bl.	... ,, IV.	335.

Certhiidæ—(Tree creepers).

431	Certhia discolor : Bl.	... J. B. I.	245.
432	Sitta neglecta : Wald.	... S. F., III.	88.
433	—— magna : Ramsay	... ,, V.	343.
434	Dendrophila corallina : Hodg.	... J. B. I.	253.

Nectariniidæ—(Honey suckers).

435	Arachnothera magna : Hodg.	... J. B. I.	223.
436	——— aurata : Bl.	... S. F., III.	85.
437	——— longirostra : Lath.	... J. B. I.	224.
438	——— modesta : Eyton	... S. F., VI.	176.
439	——— chrysogenys : Temm.	,, ,,	177.
440	Anthreptes hypogrammica: S. Müll....	,, ,,	178.
441	——— malaccensis : Scop :	... ,, ,,	186.
442	——— simplex : S. Müll.	... ,, ,,	188.
443	Æthopyga cara : Hume	... ,, II.	473 *n.*
444	——— gouldiæ : Vig.	... J. B. I.	227.
445	——— dabryi : G. Verr.	... S. F., VI.	180.
446	——— sanguinipectus : Wald.	... ,, III.	402.
447	Chalcostetha insignis : Jard.	... ,, VI.	183.
448	Nectarophila hasseltii : Temm.	... ,, ,,	184.
449	Chalcoparia phœnicotis : Temm.	... ,, III.	86.
450	Arachnechthra asiatica : Lath.	... J. B. I.	234.
451	——— flammaxillaris : Bl....	S. F., IV.	314.
452	Myzanthe ignipectus : Hodg.	... J. B. I.	241.

Hirundinidæ—(Swallows).

453	Hirundo gutturalis : Scop.	... S. F., VI.	41.
454	——— horreorum : Bart.	... ,, ,,	42.
455	——— javanica : Sparrm.	... J. B. I.	83.
456	——— filifera : Steph.	... ,,	84.
457	——— nipalensis : Hodg.	... S. F., V.	262.
458	——— striolata : Temm. et Schl.	,, VI.	44.
459	Cotyle riparia : Lin.	... J. B. I.	87.
460	——— sinensis : J. E. Gray	... ,,	89.
461	Chelidon urbica : Lin.	... ,,	92.

Alaudidæ—(Larks).

462	Alauda gulgula : Frankl.	... J. B. I.	767.
463	Alaudula raytal : Bl.	... ,,	762.

464	Mirafra assamica : McClell.	...	J. B. I.	754.
465	——— affinis : Jerd.	...	,,	755.

Upupidæ—(Hoopoes).

466	Upupa longirostris : Jerd.	...	S. F., III.	89.

Eurylæmidæ—(Broadbills).

467	Calyptomena viridis : Raff.	...	S. F., VI.	86.
468	Psarisomus dalhousiæ : Jam.	...	J. B. I.	138.
469	Serilophus rubropygius : Hodg.	...	,,	139.
470	——— lunatus : Gould	...	S. F., III.	54.
471	Eurylaemus javanicus : Horsf.	...	,, VI.	89.
472	——— ochromelas : Raff.	...	,, ,,	91.
473	Cymborhynchus affinis : Bl.	...	,, III.	336.
474	——— macrorhynchus : Gm.	...	,, VI.	92.
475	Corydon sumatranus : Raff.	...	,, ,,	97.

Psittacidæ—(Parrots).

476	Palæornis nipalensis : Hodg.	...	J. B. I.	147.
477	——— torquatus : Bodd.	...	,,	148.
478	——— bengalensis : Gm.	...	S. F., III.	56.
479	——— schisticeps : Hodg.	...	J. B. I.	150.
480	——— finschii : Hume	...	S. F., II.	509.
481	——— melanorhynchus : Wagl.	...	J. B. I.	152.
482	Loriculus vernalis : Sparrm.	...	,,	153.
483	Psittinus incertus : Shaw	...	S. F., VI.	120.

Picidæ—(Woodpeckers).

484	Dendrotypes atratus : Bl.	...	S. F. VI.,	123.
485	——— macei : Vieill.	...	J. B. I.	157.
486	——— analis : Horsf.	...	S. F., III.	57.
487	Liopipo mahrattensis : Lath.	...	J. B. I.	160.
488	Yungipicus canicapillus : Bl.	...	S. F., III.	60.
489	Hemicircus canente : Less.	...	,, ,,	61.
490	——— sordidus : Eyton	...	,, VI.	128.
491	Meiglyptes tristis : Horsf.	...	,, ,,	131.
492	——— jugularis : Bl.	...	,, III.	63.
493	——— tukki : Less.	...	,, VI.	132.
494	Chrysocolaptes sultaneus : Hodg.	...	J. B. I.	166.
495	Mulleripicus pulverulentus : Temm.	...	,,	168.
496	Thriponax crawfurdi : Gray	...	S. F., III.	66.
497	——— javensis : Horsf.	...	,, ,,	67.
498	Gecinus striolatus : Bl.	...	J. B. I.	171.
499	——— vittatus : Bl.	...	S. F., III.	69.
500	——— erythropygius : Elliot.	...	,, II.	444.
501	——— occipitalis : Vig.	...	J. B. I.	172.
502	Chrysophlegma flavinuchus : Gould	...	,,	173.
503	——— mentalis : Tem.	...	S. F., VI.	138.
504	——— puniceus : Horsf.	...	,, ,,	139.
505	——— malaccensis : Lath.	...	,, ,,	140.

506	Chrysophlegma chlorolophus : Vieill.	... J. B. I.		174.
507	Venilia pyrrhotis : Hodg.	... ,,		176.
508	Lepocestes porphyromelas : Boie	... S. F.,	VI.	143.
509	Gecinulus viridis : Bl.	... ,,	III.	71.
510	Micropternus rufinotus : Malh.	... J. B. I.		178.
511	———— brachyurus : Vieill.	... S. F.,	V.	473.
512	Tiga javanensis : Ljungh	... J. B. I.		184.
513	Gauropicoides rafflesii : Vig.	... S. F.,	VI.	146.
514	Vivia innominata : Burt.	... J. B. I.		186.
515	Sasia ochracea : Hodg.	... ,,		187.
516	Yunx torquilla : Lin.	... ,,		188.

Megalæmidæ—(Barbets).

517	Caloramphus hayii : J. E. Gray	... S. F.,	VI.	149.
518	Megalæma marshallorum : Swinh.	... J. B. I.		191.
519	——— davisoni : Hume	... S. F.,	V.	108.
520	——— virens : Bodd.	... ,,	VI.	150.
521	——— ramsayi : Wald.	... ,,	III.	402.
522	——— hodgsoni : Bonap.	... J. B. I.		192.
523	Cyanops asiatica : Lath.	... ,,		195.
524	——— incognita : Hume	... S. F.,	II.	442.
525	Chotorea mystacophanos : Temm.	... ,,	VI.	152.
526	Xantholæma hæmacephala : P. L. S. Müll.	... J. B. I.		197.
527	——— cyanotis : Bl.	... S. F.,	III.	77.

Cuculidæ—(Cuckoos).

528	Cuculus canorus : Lin.	... J. B. I.		199.
529	——— striatus : Drap.	... ,,		200.
530	——— sonneratii : Lath.	... ,,		202.
531	——— micropterus : Gould	... ,,		203.
532	Hierococcyx varius : Vahl.	... ,,		205.
533	——— nanus : Hume	... S. F.,	V.	490.
534	——— nisicolor : Hodg.	... J. B. I.		206.
535	——— sparverioides : Vig.	... ,,		207.
536	Cacomantis threnodes : Cab.	... ,,		209.
537	Surniculus lugubris : Horsf.	... ,,		210.
538	Lamprococcyx maculatus : Gm.	... ,,		211.
539	——— malayanus : Raff.	... S. F.,	VI.	503.
540	Chalcococcyx xanthorhynchus : Horsf.	... ,,	II.	191.
541	Coccystes jacobinus : Bodd.	... J. B. I.		212.
542	——— coromandus : Lin.	... ,,		213.
543	Eudynamis malayana : Cab.	... S. F.,	II.	193.
544	Zanclostomus tristis : Less.	... J. B. I.		215.
545	——— diardi : Less.	... S. F.,	VI.	163.
546	——— javanicus : Horsf.	... ,,	,,	167.
547	Phœnicophaes erythrognathus : Hartl.	... ,,	,,	165.
548	Rhinortha chlorophæa : Raff.	... ,,	,,	166.
549	Poliococcyx sumatranus : Raff.	... ,,	,,	164.
550	Centropus intermedius : Hume	... ,,	I.	454.
551	——— bengalensis : Gm.	... J. B. I.		218.

Coraciidæ—(Rollers).

552	Coracias affinis : Mc'Clell.	... J. B. I.	124.
553	Eurystomus orientalis : Lin.	... ,,	126.

Trogonidæ—(Trogons).

554	Harpactes duvaucelii : Temm.	... S. F., VI.	63.
555	——— hodgsoni : Gould.	... J. B. I.	116.
556	——— oreskios : Temm.	... S. F., III.	48.

Caprimulgidæ—(Nightjars).

557	Batrachostomus hodgsoni : G. R. Gray	... J. B. I.	106.
558	Caprimulgus albinotatus : Tick.	... ,,	109.
559	——— macrourus : Horsf.	... ,,	110.
560	——— asiaticus : Lath.	... ,,	112.
561	——— jotaka : Temm. et Schl.	... S. F., VI.	56.
562	——— monticolus : Frankl.	... J. B. I.	114.
563	Lyncornis cervinicops : Gould	... S. F., VI.	60.

Cypselidæ—(Swifts).

564	Acanthylis coracina : S. Müll.	... S. F., VI.	45.
565	——— indica : Hume	... ,, I.	471.
566	——— gigantea : v. Hasselq.	... ,, IV.	287.
567	Cypselus subfurcatus : Bl.	... ,, II.	524.
568	——— pacificus : Lath.	... ,, III.	43.
569	——— infumatus : Sclat.	... ,, ,,	44.
570	Collocalia innominata : Hume	... ,, I.	294.
571	——— spodiopygia : Peale.	... ,, I.	296.
572	——— linchi : Horsf.	... ,, I.	296.
573	Macropteryx coronatus : Tick.	... J. B. I.	104.
574	——— comata : Temm.	... S. F., VI.	51.
575	——— longipennis : Rafin.	... ,, ,,	52.

Meropidæ—(Bee-eaters).

576	Merops viridis : Lin.	... J. B I.	117.
577	——— philippinus : Lin.	... ,,	118.
578	——— leschenaulti : Vieill.	... ,,	119.
579	Nyctiornis athertoni : J. et Sel.	... ,,	122.
580	——— amictus : Temm.	... S. F., VI.	69.

Alcedinidæ—(Kingfishers).

581	Pelargopsis burmannica : Sharpe	... S. F., II.	165.
582	——— amauroptera : Pears.	... J. B. I.	128.
583	Halcyon smyrnensis : Lin.	... ,,	129.
584	——— pileata : Bodd.	... ,,	130.
585	——— coromanda : Lath.	... ,,	131.
586	——— concretus : Temm.	... S. F., VI.	76.
487	——— chloris : Bodd.	... J. B. I.	132.
588	Carcineutes pulchellus : Horsf.	... S. F., VI.	79.
589	Ceyx tridactyla : Pall.	... J. B. I.	133.

590	Alcedo bengalensis : Gm.	... J. B. I.	134.
591	——— beavani : Wald.	... S. F., II.	494.
592	——— euryzona : Temm.	... ,, VI.	81.
593	Ceryle rudis : Lin.	... J. B. I.	136.
594	——— guttata : Vig.	... ,,	137.

Bucerotidæ—(Hornbills).

595	Dichoceros cavatus : Shaw	... J. B I.	140.
596	Hydrocissa albirostris : Shaw	... ,,	142.
597	Anorhinus tickelli : Bl.	... S. F., VI.	103.
598	——— galeritus : Temm.	... ,, ,,	109.
599	Berenicornis comatus : Raff.	... ,, ,,	106.
600	Aceros nipalensis : Hodg.	... J. B. I.	146.
601	——— subruficollis : Bl.	... S. F., VI.	112.
602	——— undulatus : Shaw	... ,, ,,	111.
603	Rhinoplax vigil : Forst.	... ,, ,,	115.

Columbidæ—(Pigeons).

604	Toria nipalensis : Hodg.	... J. B. I.	771.
605	Crocopus viridifrons : Bl.	... S. F., III.	161.
606	Osmotreron bicincta : Jerd.	... J. B. I.	774.
607	——— vernans : Lin.	... S. F., VI.	411.
608	——— phayrei : Bl.	... J. B. I.	776.
609	——— fulvicollis : Wagl.	... S. F., VI.	413.
610	Sphenocercus sphenurus : Vig.	... J. B. I.	778.
611	——— apicaudus : Hodg.	... ,,	779.
612	Carpophaga ænea : Lin.	... ,,	780.
613	——— bicolor : Scop.	... S. F., II.	265.
614	Ducula griseicapilla : Wald.	... ,, III.	402.
615	Alsocomus puniceus : Tick.	... J. B. I.	782.
616	Columba intermedia : Strick :	... ,,	788.
617	Macropygia tusalia : Hodg.	... ,,	791.
618	——— assimilis : Hume	... S. F., II.	441.
619	Turtur meena : Sykes.	... J. B. I.	793.
620	——— tigrinus : Temm.	... S. F., I.	461.
621	——— risorius : Lin.	... J. B. I.	796.
622	——— humilis : Temm.	... S. F., III.	279.
623	Geopelia striata : Lin.	... ,, VI.	423.
624	Chalcophaps indica : Lin.	... J. B. I.	798.

Phasianidæ—(Pheasants).

625	Pavo muticus : Lin. ...	... S. F., VI.	425.
626	Argus giganteus : Temm.	... ,, ,,	427.
627	Polyplectron chinquis : Temm.	... ,, ,,	432.
628	Euplocomus vieilloti : G. R. Gray	... ,, ,,	438.
629	Gennæus lineatus : Lath.	... ,, III.	166.
630	——— cuvieri : Temm.	... ,, ,,	166 *n.*
631	——— crawfurdi : J. E. Grey	... ,, VI.	437.
632	Gallus ferrugineus : Gm.	... J. B. I.	812.

Tetraonidæ—(Partridges and Quail).

633	Francolinus sinensis : Osb.	... S. F.,	III.	171.
634	Arboricola intermedius : Bl.	... ,,	,,	344.
635	——— brunneopectus : Tick.	... ,,	,,	174.
636	——— chloropus : Tick.	... ,,	,,	176.
637	——— charltoni : Eyton	... ,,	VI.	445.
638	——— rufigularis : Hodg.	... J B. I.		825.
639	Caloperdix oculea : Temm.	... S. F.,	VI.	449.
640	Rollulus roulroul : Scop.	... ,,	,,	448.
641	Coturnix communis : Bonat.	... J. B. I.		829.
642	——— coromandelicus : Gm.	... ,,		830.
643	Excalfactoria sinensis : Lin.	... ,,		831.
644	Turnix plumbipes : Hodg.	... ,,		833.
645	——— maculosus : Temm.	... S. F.,	VI.	452.

Glareolidæ—(Swallow plovers).

646	Glareola orientalis : Leach.	... J. B. I.	842.
647	——— lactea : Temm.	... ,,	843.

Charadriidæ—(Plovers).

648	Squatcrola helvetica : Gm.	... ,,	844.
649	Charadrius fulvus : Gm.	... ,,	845.
650	Ægialitis geoffroyi : Wagl.	... ,,	846.
651	——— mongolus : Pall.	... ,,	847.
652	——— alexandrinus : Lin.	... ,,	848.
653	——— dubius : Scop.	... ,,	849.
654	——— minutus : Pall.	... ,,	850.
655	Chettusia cinerea : Bl.	... ,,	854.
656	Sarcogramma atrinuchalis : Bl.	... S. F., III.	181.
657	Hoplopterus ventralis : Cuv.	... J. B. I.	857.
658	Esacus recurvirostris : Cuv.	... ,,	858.
659	Œdicnemus crepitans : Temm.	... ,,	859.

Hæmatopidæ—(Turnstones).

660	Strepsilas interpres : Lin.	... ,,	860.
661	Hæmatopus ostralegus : Lin.	... ,,	862.

Scolopacidæ—(Snipe).

662.	Scolopax rusticola : Lin.	... ,,	867.
663.	Gallinago stenura : Kuhl.	... ,,	870.
664.	——— scolopacina : Bonap.	... ,,	871.
665.	——— gallinula : Lin.	... ,,	872.
666.	Rhynchæa bengalensis : Lin.	... ,,	873.
667.	Pseudoscolopax semipalmatus : Jerd.	... ,,	874.
668.	Limosa ægocephala : Lin.	... ,,	875.
669.	Xenus cinereus : Gülden.	... ,,	876.
670.	Numenius lineatus : Cuv.	... ,,	877.
671.	——— phæopus : Lin.	... ,,	878.
672.	Machetes pugnax : Lin.	... ,,	880.
673.	Tringa crassirostris : T. et Schl.	... S. F., I.	240.

674	Tringa subarquata : Gülden.	... J. B. I.	882.
675	——— minuta : Pall.	... ,,	884.
676	——— subminuta : Middend.	... S. F., I.	242.
677	——— temminckii : Leisl.	... J. B. I.	885.
678	——— platyrhyncha : Temm.	... ,,	886.
679	Eurynorhynchus pygmæus : Lin.	... ,,	887.
680	Calidris arenaria : Lin.	... ,,	888.
681	Actitis glareola : Lin.	... ,,	891.
682	——— ochropus : Lin.	... ,,	892.
683	——— hypoleucus : Lin.	... ,,	893.
684	Totanus glottis : Lin.	... ,,	894.
685	——— haughtoni : Armstrong	... S. F., IV.	344.
686	——— stagnatilis : Bechst.	... J. B. I.	895.
687	——— fuscus : Lin.	... ,,	896.
688	——— calidris : Lin.	... ,,	897.
689	Himantopus autumnalis : Hasselq.	... ,,	898.

Rallidæ—(Waterhens).

690	Porphyrio poliocephalus : Lath.	... J. B. I.	902.
691	Fulica atra : Lin.	... ,,	903.
692	Podica personata : G. R. Gray	... S. F., III.	186.
693	Gallicrex cinerea : Gm.	... J. B. I.	904.
694	Gallinula chloropus : Lin.	... ,,	905.
695	Erythra phœnicura : Forst.	... ,,	907.
696	Porzana maruetta : Briss.	... ,,	909.
697	——— pygmœa : Naum.	... ,,	910.
698	Rallina fusca : Lin.	... ,,	911.
699	——— ceylonica : Gm.	... ,,	912.
700	——— fasciata : Raff.	... S. F., III.	188.
701	Hypotænidia striata : Lin.	... J. B. I.	913.
702	Rallus indicus : Bl.	... ,,	914.

Parridæ—(Jacanas).

703	Hydrophasianus chirurgus : Scop.	... J. B. I.	901.
704	Parra indica : Lath.	... ,,	900

Ardeidæ—(Herons).

705	Ardea sumatrana : Raff.	... J. B. I.	922.
706	——— cinerea : Lin.	... ,,	923.
707	——— purpuria : Lin.	... ,,	924.
708	Herodias alba : Lin.	... ,,	925.
709	——— intermedia : Hass.	... ,,	926.
710	——— garzetta : Lin.	... ,,	927.
711	——— eulophotes : Swinh.	... S. F., VI.	478.
712	Demiegretta sacra : Gm.	... ,, II.	304.
713	Bubulcus coromandus : Bodd.	... J. B. I.	929.
714	Ardeola grayi : Sykes	... ,,	930.
715	——— prasinosceles : Swinh.	... S. F., VI.	481.
716	Butorides javanicus : Horsf.	... J. B. I.	931.
717	Ardeiralla flavicollis : Lath.	... ,,	932.

718	Ardetta cinnamomea : Gm.	... „	933.
719	——— sinensis : Gm.	... „	934.
720	Goisachius melanolophus : Raff.	... S. F., II.	312.
721	Nycticorax griseus : Lin.	... J. B. I.	937.

Ciconidæ—(Storks).

722	Leptoptilos giganteus : Forst.	... „	915.
723	——— javanicus : Horsf.	... „	916.
724	Xenorhynchus asiaticus : Lath.	... „	917.
725	Melanopelargus episcopus : Bodd.	... „	920.

Tantalidæ—(Ibises).

726	Tantalus leucocephalus : Gm.	... „	938.
727	Anastomus oscitans : Bodd.	... „	940.
728	Ibis melanocephalus : Lath.	... „	941.
729	Inocotis papillosus : Temm.	... „	942.
730	——— davisoni : Hume	... S. F., III.	300.
731	Falcinellus igneus : S. G. Gm.	... J. B. I.	943.

Gruidæ—(Cranes).

732	Grus antigone : Lin.	... „	863.

Pelecanidæ—(Pelecans).

733	Pelecanus philippensis : Gm.	... „	1,004.
734	——— javanicus : Horsf.	... „	1,003.

Anatidæ—(Ducks).

735	Sarkidiornis melanonotus : Penn.	... „	950.
736	Nettapus coromandelianus : Gm.	... „	951.
737	Dendrocygna javanica : Horsf.	... „	952.
738	——— major : Jerd.	... „	953.
739	Casarca rutila : Pall.	... „	954.
740	——— scululata : S. Mull.	... „	955.
741	Anas pœcilorhyncha : Penn.	... „	959.
742	—— caryophyllacea : Lath.	... „	960.
743	Chaulelasmus strepera : Lin.	... „	961.
744	Dafila acuta : Lin.	... „	962.
745	Mareca penelope : Lin.	... „	963.
746	Querquedula crecca : Lin.	... „	964.
747	——— circia : Lin.	... „	965.
748	Fuligula nyroca : Güld.	... „	969.

Podicipidæ—(Grebes).

749	Podiceps minor : Gm.	... „	975.

Graculidæ—(Cormorants).

750	Graculus carbo : Lin.	... „	1,005.
751	——— fuscicollis : Steph.	... „	1,006.
752	——— pygmæus : Pall.	... „	1,007.
753	Plotus melanogaster : Penn.	... „	1,008.

Laridæ—(Gulls).

754	Larus ichthyaëtus : Pall.	... „	979.
755	Xema brunneicephala : Jerd.	... „	980.
756	Lestris pomarhinus : Temm.	... S. F., VI.	490.

Sternidæ—(Terns).

757	Sylochelidon caspius : Pall.	... J. B. I.	982.
758	Gelochilidon anglicus : Mont.	... „	983.
759	———— hybrida : Pall.	... „	984.
760	Seena aurantia : Gray	... „	985.
761	Sterna dougalli : Mont.	... S. F., II.	317.
762	——— melanogastra : Temm.	... J. B. I.	987.
763	Sternula minuta : Lin.	... „	988.
764	Pelecanopus bergii : Lichst.	... „	989.
765	———— medius : Horsf.	... „	990.
766	Onychoprion sumatrana : Raff.	... „	991.
767	———— fuliginosus : Gm.	... S. F., IV.	477.
768	Anous stolidus : Lin.	... J. B. I.	993.
769	Rhynchops albicollis : Swain.	... „	995.
770	Phaeton indicus : Hume.	... S. F., I.	286.
771	Sula australis : Steph.	... J. B. I.	998.

ADDENDA.

The following species have recently been added :—

Phylloscopus flavo-olivaceus : Hume.
———— humii : Brooks.
———— xanthodryas : Swin.
Locustella certhiola : Pall.
———— tacsanowskia : Swin.

CHAPTER XVIII.

REPTILIAN FAUNA.

[BY W. THEOBALD, DEPUTY SUPERINTENDENT, GEOLOGICAL SURVEY OF INDIA.]

The reptilian fauna of British Burma is not only rich both in species and in individuals but is interesting likewise as comprising a portion of two very distinct zoological provinces,—namely, that of cis-gangetic or Peninsular India to the north and the Malay region to the south, whence results the somewhat, zoologically speaking, incongruous list here given, from the want of congruity between zoological provinces and political boundaries. Anything, however, beyond a brief sketch of the subject would be out of place in a work like the present.*

In the four great classes of vertebrate animals oviparous reproduction is the absolute rule, though very different are the vicissitudes which the ovum of a mammal or of a fish will, respectively, have to encounter. In a mammal the ovum can hardly be regarded as enjoying any independent existence as it is no sooner free from the organ wherein it had been formed than it perishes or, if detached under vitalizing conditions, it is at once converted from an egg into an embryo which (with a modified exception in the case of marsupials) maintains an organic connection with its parent till it is capable of supporting a separate existence. With AVES, REPTILIA and PISCES the case is different. In their case the vivified egg is augmented in bulk by being embedded in a mass of nutritive material whereon the embryo is supported, which in the case of AVES and true REPTILES is enveloped in a covering, either shelly or coriaceous, whereby it is protected from external violence; whilst in the case of PISCES or the order BATRACHIA this security is ensured by the ova being committed to water without any protective covering. Exceptionally among reptiles and fish, never among birds, the egg is developed within the body of the parent, but the viviparism of these classes is merely analogous (but with no functional homology) to that of the mammal.

The Reptilian order BATRACHIA (frogs and newts) differs from true reptiles in the newly hatched young normally passing through a larval stage, being provided with gills and a tail adapted for

* A more exact knowledge of Indian reptiles than the present paper can convey may be obtained by consulting Günther's Monograph of Indian Reptiles (Ray Society's Volume for 1864); Nicholson's Handbook of Snakes (Madras; Higginbotham and Co., 1874); and Theobald's Descriptive Catalogue of Indian Reptiles (Calcutta; Thacker, Spink and Co., 1876).

natation. These organs are deciduous, and it is now known that if the eggs of a Batrachian are hatched out of water instead of in it no larval stage will be passed through.

As a rule the temperature of reptiles corresponds with the medium wherein they live, but in some snakes (Python, etc.) which incubate their eggs a rise of temperature takes place whilst they are so engaged.

Class.—REPTILIA.

Order.—CROCODILIA.

Reptiles with deciduous teeth firmly implanted in deep sockets. Cloacal orifice longitudinal. Generative organs single. Inhabiting rivers and occasionally the sea near the shore.

Family.—Crocodilidæ.—(Mee-gyoung, *Burm.*).

Toes five behind, four before. Claws three on all feet.

Crocodilus.—Cuvier.

The fourth tooth of the lower jaw fits into a notch in the upper jaw so as to be visible when the jaws are closed, the same teeth in the *alligator* being received within a pit.

1. *C. palustris*, Less.

Colour pale olive, conspicuously black spotted; grows to thirty feet. Very blunt snout. Nuchal shields four.

2. C. *porosus*, Sch.

Colour same as preceding; grows to thirty feet. Snout much narrower than in the last. Nuchal shields none: dorsal normal.

The precise distribution of these two species is not well made out. *C. porosus* is the species which abounds in all the tidal rivers of Burma; *C. palustris* I have only seen inland near Thayetmyo. *C. palustris* has two pairs of anterior nuchal (nape) plates; *C. porosus* has no anterior nuchal plates or only a pair of small ones, and eight dorsal rows of plates in the centre of the back. They are dangerous and aggressive animals in the breeding season, which is during the rains (June or July).

3. *C. pondicerianus*, Gray.

Nuchal shields none; dorsal shields broad. Dr. Stoliczka has recorded the appearance of this species at Akyab.

Gharialis.—Geoffroy.

Snout very long and slender; teeth slender, sharp. Nose humped in males.

4. *G. gangeticus*, Gmel.

This species reaches as far east as the Koo-la-dan river but is not known in Pegu.

Order.—CHELONIA.

Reptiles without teeth. Limbs more or less enclosed within a bony case. Cloacal orifice circular. Generative organs single.

Family.—**Testudinidæ.**

Terrestrial Chelonians. Feet clubbed and adapted for walking on land. Eggs large, cylindrical, and hard-shelled.

Testudo.—Oppel.

5. *T. platynotus*, Blyth.—Burmese starred tortoise.

Colour black with yellow rays. No nuchal plate. Found in Northern Pegu and Upper Burma, where it represents *T. elegans* of Continental India.

6. *T. elongata*, Blyth.—Yellow land tortoise.

Colour pale yellow, black-mottled (not rayed). Head yellow, with soft skin of eyes and nostrils pink. A long nuchal plate. Inhabits Pegu and Tenasserim.

Manouria.—Gray.

7. *M. emys*, Müll. et Schl.—(Taw-liep, *Burm*).

A very large land tortoise differing from *Testudo* in the caudal shield being divided. Colour of young shells dull olive-brown, with horny areola; of adults wholly black. Inhabits Arakan, Assam, the Malayan Peninsula, etc.

Geomyda.—Gray.

Shell like *Testudo* but feet webbed in correlation to its aquatic habits.

8. *G. grandis*, Gray.—The greater marsh tortoise.

Shell above very dark brown, almost black, rayed in the young; below handsomely black- and yellow rayed. It inhabits Pegu, Tenasserim and Camboja.

9. *G. spinosa*, Bell.—The spiny marsh tortoise.

Colour above chestnut; below yellow, brown-rayed. Each costal armed with a small spine. Inhabits Tenasserim.

10. *G. depressa*, Anderson.

11. *G. arakana*, Theobald.

Colour above yellowish, dark-mottled; below yellow; black-mottled on the sides. Inhabits Arakan.

Family.—**Cistudinidæ.**

Fresh water Chelonians with the sternum attached to the thorax by a ligamentous suture permitting a certain amount of mobility between the upper and lower shells.

Cuora.—Gray.

12. *C. amboinensis*, Daud.

Colour above blackish; below primrose-yellow, with a black spot on each plate. Inhabits Pegu, the Malayan Peninsula, Java, etc.

Cyclemis.—Bell.

13. *C. dentata*, Bell.

More depressed than the last. Colour uniform brown above and below in adults; young handsomely yellow-rayed. Inhabits Pegu and Tenasserim.

Family.—**Emydidæ.**

Fresh water Chelonians of small or medium size. Sternum and thorax united into a firm bony case.

Bellia.—Gray.

14. *B. crassicollis*, Gray.

Second, third, and fourth vertebral plates mushroom-shaped in the adult. Colour deep clouded olive-brown tending to blackish above and below, without markings but paler in spots. Inhabits Tenasserim, Siam, etc.

Melanochelys.—Gray.

15. *M. edeniana*, Anderson.

This species represents *M. sebæ* of Ceylon and *M. trijuga* of Continental India. It is the largest of the three, growing to twelve inches. Colour black; keels and edges of the sternum yellowish; head not spotted. Inhabits Arakan, Pegu and Tenasserim.

Family.—**Bataguridæ.**

Fluviatile or estuarine Chelonians, mostly of large size. Herbivorous.

Morenia.—Gray.

Small sized bataguroids, ornamented with ocelli (in the adult).

16. *M. berdmorei*, Blyth.—(Liep-daik: Liep-tsouk, *Burm.*).

Colour above pale greenish-olive, each costal with a dark spot surrounded by a pale margin. Inhabits Pegu and Tenasserim, where it represents *M. ocellata* of Lower Bengal.

Batagur.—Gray.

Toes five before, four behind; all fully webbed.

17. *B. kachuga*, Buch. Ham.

Colour above uniform greenish-olive brown; beneath yellowish. Inhabits Pegu and Tenasserim, ranging into Bengal and the North-West Provinces.

18. *B. affinis*, Günther.

Nuchal plate none. Colour above yellowish-green with three broad longitudinal black bands; below yellowish; a large black blotch on the upper anterior angle of each marginal plate. Probably stretches into Tenasserim from the Malayan Peninsula.

19. *B. trivittata*, Dum. et Bib.—(Liep-poot, *Burm.*).

A small nuchal plate. Shell of male green with three pitchy-black bands; of the female uniform brown. This handsome species inhabits Pegu and Tenasserim where it replaces *B. dhongoka* of Bengal.

In the breeding season the male batagurs are splendidly coloured animals.

Tetraonyx.—Lesson.

Resembles *Batagur*, but has only four claws on all feet.

20. *T. baska*, Buch. Ham.

Colour uniform pale brown. Common in Pegu and Tenasserim.

Family.—**Platysternidæ.**

Platysternon.—Gray.

Head beaked; shell depressed; tail long and covered with rings of sub-quadrangular shields.

21. *P. peguense*, Gray.

Colour of young fleshy grey; each of the costal shields with a central black tubercle; beneath bright reddish orange with a little black about the sutures. Inhabits streams falling into the Tsittoung and Salween rivers. Is said to make a chirruping noise under the water.

Family.—**Chitridæ.**

Cartilaginous Chelonians with three claws on each foot and weak lower jaws.

Chitra.—Gray.

22. *C. indica*, Gray.—(Liep-kye, *Burm.*).

Colour above dark olive-brown, lineately marbled; below yellowish-white. Young without ocelli. Inhabits rivers and estuaries in India and Burma. A savage and desperate animal, said to grow to two hundred and forty pounds weight.

Pelochelys.—Gray.

23. *P. cantori*, Gray.

This species is remarkably like the last externally; the skull differs, however, very much. In *Pelochelys* the semi-diameter across

the mandibular condyles is contained *twice* between the condyles and the palatal opening of the nostrils whilst in *Chitra* it is contained more than three times. Inhabits Arakan.

Family.—**Trionycidæ.**

Cartilaginous fresh-water Chelonians, with three claws on each foot and strong lower jaws. Carnivorous; eggs globular, calcareous.

Trionyx.—Geoffroy.

Young handsomely ocellated.

The Indian species of this genus are divisible into two groups by the inner mandibular symphysical area. In group A the median area is smooth or depressed; in group B it is traversed by a distinct ridge. All the species hitherto recorded from Burma seem to belong to group B.

24. *T. phayrei*, Theobald.

Adults brown handsomely vermiculated; head with reniform mottling. Sternum very cartilaginous. Inhabits Pegu, Tenasserim, Singapore, etc.

25. *T. nigricans*, Anderson.

Colour above blackish. Inhabits tanks in Chittagong.

26. *T. grayii*, Theobald.

Colouration like *T. phayrei*; but in that species the sternal bones are small and the lower plates largely made up of cartilage whereas in *T. grayii* the ossification is as much developed as in *T. gangeticus*. Inhabits Pegu.

27. *T. peguensis*, Gray.

Head only known. Colour olive, minutely black-dotted. Inhabits Pegu.

28. *T. formosus*, Gray.

Young only known. Colour of young olive, with four very large black-eyed spots, the central spot circular, the black with a narrow white (yellow ?) margin surrounded by a dark brown ring enclosed within an outer broad pale ring, with a narrow olive interspace between. Back ornamented with symmetrical dark reticulations; beneath sooty. Inhabits Pegu.

29. *T. stellatus*, Geoffroy.—(Liep-kye, *Burm.*).

Colour of head and neck grey, profusely yellow mottled; shell brown with vermiculate markings in the young. Head more taper than in *T. phayrei*. Inhabits Pegu, Tenasserim and Java.

30. *T. ephippium*, Theobald.

Young only known. A saddle-shaped blotch across the back. Inhabits Tenasserim.

Probably these do not represent all living in Burma and a good series is desirable.

Emyda.—Gray.

Similar to *Trionyx* but with flexible flaps on each side of the posterior sternal lobe, and the margin of the shell strengthened with numerous small bony plates. Eggs spherical.

31. *E. scutata*, Peters.—The Burmese flap turtle.

The cartilaginous character of the shell enables the animal to entirely retreat its head and limbs when alarmed. It can inflict a very severe bite. Colour above pale greenish-olive. Inhabits Pegu.

The turtles enumerated above are all excellent as food except such small Emydines as *Bellia* which is much of a scavenger and the *Trionycidæ* and *Chitridæ* which are carrion feeders.

Family.—**Chelonidæ.**

Marine Chelonians with fins in place of feet.

Caouna.—Gray.

Five pair of costal shields. Carnivorous: inedible.

32. *C. olivacea*, Eschs.

The Indian logger-head abounds on the coast and its eggs are collected in large numbers. Its flesh is rank in the extreme and unfit for soup though sometimes used in mistake for the next which it nearly resembles.

Chelonia.—Fleming.

Four pair of costal shields. Algivorous: edible.

33. *C. virgata*, Schw.—(Liep-byeng-won, *Burm.*).

Far less numerous than the last, from which it can easily be distinguished by the difference in the number of costal shields.

Caretta.—Merrem.

Four pair of costal shields. Carnivorous: inedible.

34. *C. squamata*, Bontius.—The tortoise-shell turtle.

Nose beaked, hawk-like. Inhabits the coasts.

Dermatochelys.—Blainville.

Carnivorous: inedible. Shell coriaceous.

35. *D. coriacea*, L.

Shell cordiform, covered with a leathery skin and traversed by seven longitudinal ridges. Colour above (alive) dark neutral tint irregularly ornamented with white splashes; ridges whitish; below, and beneath paddles, pale flesh colour blotched with pale

blackish neutral which in the sternum takes the form of three longitudinal bands on each side of the mesial suture. Rare on the coast; said to grow to eight hundred pounds weight.

Order.—SAURIA.

Reptiles with teeth adnate to the jaws, not socketted. Cloacal orifice transverse; generative organs bifid. No poisonous species are known.

Family.—**Varanidæ.**

Tongue elongate, slender, bifid, retractile into a sheath at its base.

Varanus.—Merrem.

Nostrils in an oblique slit. Tail vertically compressed, with a crest of keeled scales.

36. *V. flavescens*, Gray.—(Hpwot-mee-gyoung, *Burm.*).

Nostrils nearer to nose than to eye. Colour greenish or brownish-olive, with irregular dark markings confluent into cross-bands on back and tail; throat with irregular, dark, transverse bands.

37. *V. dracæna*, L.

Nostrils mid-way between nose and eye. Colour brownish-olive, black-dotted.*

38. *V. nebulosus*, Gray.

Nostril nearer to the eye than to the nose. An enlarged row of superciliary scales. Colour reddish-brown mingled with yellow, and yellow-spotted; a few indistinct spots about the nape and dark bands towards the end of the tail; head yellowish.

All three species are pretty common and attain to four feet or more in length.

Hydrosaurus.—Wagler.

Nostrils rounded and nearer the eye than the snout.

39. *H. salvator*, Laur.—(Hpwot-kya: Hpwot-kyai, *Burm.*).

Colour dark brown or brownish-black; limbs yellow spotted; four transverse bands of yellow rings or ocelli across the back. Tail at base yellow- and black mottled and then posteriorly broadly black- and yellow banded; beneath yellowish; throat black spotted. Grows to upwards of seven feet. Inhabits Bengal, Ceylon and Burma.

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* Colour according to W. T. Blanford—(J. A. S. B. 1879, pt. ii., pp., 122-23)—dusky yellow to greenish-olive thickly speckled with black; in the young the dark transverse bands are broad, nearly equal to the interspaces. (*Edit.*)

The species of this family are eagerly eaten by Burmese, who roast the animal on a bamboo spit and regard the meat as superior to that of fowls.

Family.—**Lacertidæ.**

Tongue slender, free, exsertile; tip forked. Tail very long. Habits active, diurnal. Food insects.

Tachydromus.—Daudin.

40. *T. sexlineatus*, Daud.

Dorsal scales in four longitudinal rows. Colour greenish-bronze above with, sometimes, a pair of silvery bands; sides greenish, separated from the back by a narrow black line running from the nostril through the eye and tympanum; beneath yellowish. Inhabits Pegu and Tenasserim.

Family.—**Zonuridæ.**

Head covered with symmetrical shields. Tail rounded. A distinct longitudinal fold. Eyes diurnal, with lids. Ears distinct.

Pseudopus.—Merrem.

Snake-like. Body limbless or nearly so.

41. *P. gracilis*, Gray.

Colour above yellowish-brown with (during life) some shining turquoise blue spots irregularly distributed. (*Ophiseps tessalatus*, Blyth). Rangoon.

Family.—**Scincidæ.**

SECTION A.—Scales keeled.

Tropidophorus.—Dum. et Bib.

42. *T. berdmorei*, Blyth.

Tail spinosely keeled. Colour brown with oblique red bars margined with black. Found under stones in wet streams in Pegu and Tenasserim.

Euprepes.—Wagler.

a.—Lower eyelid scaly.

43. *E. carinatus*, Schm.—The common ground lizard (Theng-khyaw : Hpoot-theng-khyaw : Theng-liep [Theng-ka-la, *Tavoy*] *Burm.*).

Tail spineless. Scales in from three to five rows and keeled. Viviparous. Prevailing hue rich olive-brown or bronze, darker on the sides, and with a pale lateral stripe from over the eye down each side of the back; this lateral stripe is often white-

spotted, or of a very pronounced yellow and, seasonally, the sides are deeply suffused with red; the back is often black-dotted or with blackish streaks along the series of scales. Usually grows to ten inches or less but Andaman specimens attain twenty inches. It is spread over the whole of Peninsular India and Burma.

44. *E. macularius*, Blyth.

Oviparous. Closely resembles the last but scales in from five to seven rows and keeled. Colour pale bronze, black-spotted, the spots being long and streaky; from nose to tail a long black band on either side, white margined above. Colours display the same seasonal variation as in *E. carinatus*. Rarely exceeds six inches in length. Inhabits Bengal, Burma and the Malayan Peninsula.

b.—Lower eyelid with a transparent disk.

(No species of this division hitherto recorded from Burma.)

SECTION B.—Scales smooth.

Hinulia.—Gray.

Lower eyelid scaly. Supranasal none.

45. *H. indica*, Gray.

Scales in forty-six transverse rows. Colour above bronze-brown, sometimes olive-tinged, uniform or with a few scattered dark spots; sides dark-banded, indistinctly margined above with white and passing below into dull brown marbled with paler; sides of tail greyish-brown with an upper dark edge and darker-marbled, with a few pale spots and indistinct stripes; below greenish-white; limbs and tail (during life) a pale fleshy brown. Grows to ten inches. Inhabits Assam, Burma, etc.

46. *H. maculata*, Blyth.

Very close to *H. indica*, but scales in ninety-six transverse rows. Colour above brownish-olive or pale bronze, with two series of black dots; a dark band along the sides evanescent on the tail and margined above and below with a pale streak continued, with scalloped or undulated margins, to the tip of the tail; in adults the sides grey-marbled; below whitish. A handsome forest species growing to six and a half inches. Inhabits Pegu and Tenasserim (North).

Riopa.—Gray.

Body long; legs feeble; toes five.

a.—Lower eyelid scaly.

47. *R. albopunctata*, Gray.

Colour uniform brown above, or with six median rows of scales black-dotted forming fine lines down the back and tail; margins of

back sometimes pale-coloured; sides purplish-black with conspicuous black spots; beneath whitish; limbs black-spotted. Body longer than tail. Inhabits Continental India and Burma.

48. *R. lineolata*, Stoliczka.

Closely allied to preceding but tail longer than body. Colour greenish irridescent brown above with an almost continuous series of small dark brown dots on each side of the back from the nape, margined above and below by a pale line. Inhabits Tenasserim (North).

b.—Lower eyelid with a transparent disk.

49. *R. anguina*, Theobald.

Five occipital shields, the anterior pair and ventral shields sub-equal, central large. Colour uniform brown above, paler on sides, and white below; base of tail yellowish; no dark lateral stripe or dots. Inhabits Pegu.

50. *R. cyanella*, Stoliczka.

The median occipital shield smaller than the anterior pair; limbs longer than in *R. anguina*. Colour olive-brown with an irridescent blue tinge; pale brownish-olive on the side; a few white spots on the side of the neck and about the shoulder; a narrow white, slightly black margined, band from behind the orbit to about the middle of the side where it fades to reappear on the hip; tail brown, speckled on the sides; limbs above lineated; chin and throat yellowish. Inhabits Pegu.

Family.—**Geckotidæ.**

Head triangular. Back covered with granular or tubercular scales. Feet armed below with pneumatic plates. Eggs globular; calcareous. Femoral pores in males only. Tails easily detached. Pupils elliptical, save in *Phelsuma* which is not found in Burma.

a.—Pneumatic plates on feet undivided.

Gecko.—Gray.

Four claws on each foot. No lateral cutaneous expansion.

51. *G. guttatus*, Daud.—(Touk-tai, *Burm.*).

No enlarged subcaudals. Colour pale olive-grey, slaty over the head, with four or five transverse white bands across the body; body and limbs red-spotted belly white, red-spotted; longitudinal tubercles of back, red or, when standing on a white band, white. It lays six or eight (or more) very hard-shelled white eggs of a globular form and of the size of a musquet ball, affixing them to trees, rocks, or secluded portions of buildings; when first extruded they are soft. They are great destroyers of insects and will destroy young rats and even capture bats. They are found throughout Burma.

52. *G. stentor*, Cantor.

Colour above pale brown or ashy, with some darker markings; tail dark and white-banded; below whitish. Differs from *G. guttatus* in possessing a double row of enlarged plates along the tail underneath. From Chittagong through Burma to the Malayan Peninsula.

Ptychozoon.—Kuhl.

Four claws on each foot. Skin of side expanded into a flap.

53. *Pt. homalocephalum*, Creveldt.

Colour of head a yellowish-green olive; a transverse band in whitish outline before the eyes united by a narrow stem to an anterior arrow-head mark; on the vertex a four-rayed rectangular star with pale outline; a dark band from behind the eye to the shoulder, margined above with white; lips white; the membranes of the cheeks pale flesh colour with dark blue spots and the interstitial skin pale lilac; back of the same colour as the head but passing on the sides into dark reddish-brown with four or six transverse ill-shaped dotted lines; tail and limbs with broad distant, indistinct pale transverse bands; on each elbow a whitish ring; beneath whitish; throat and inside limbs brown-spotted. Inhabits Burma, the Malayan Archipelago, &c.

b.—Pneumatic plates on feet divided.

Hemidactylus.—Cuvier.

Toes and claws five on each foot. The common wall lizard.

54. *H. maculatus*, Dum. et Bib.

Back with numerous trihedral tubercles. Twenty to twenty-eight femoral pores. Length up to five and a half inches. Colour brownish-olive, or dark brown above with darker spots, bands or streaks; a pale-margined dark eye streak from the eye over the ear. Inhabits Continental India, Burma and the Andamans.

55. *H. cocteaui*, Dum. et Bib.—(Iem-hmyoung, *Burm.*).

Back uniformly granular. Femoral pores twelve to sixteen. Occasionally exceeds seven inches. Colour greenish-grey with five transverse dark bands, posteriorly edged with white, from neck to loins; tail similarly banded above; a pale band, dark-margined above, through the eye. Inhabits Northern India, Bengal, Burma and Siam.

56. *H. frænatus*, Schl.

Tail spiny. Thumb very small. Femoral pores twenty-seven to thirty-five. Grows to about five and a half inches. Colour variable;—grey-marbled with darker, or grey with irregular stripes and dark marblings, or dark brown with blackish stripes; a pale dark-

margined band through the eye to the loins. Inhabits Continental India, Burma, the Andamans and the Malayan Peninsula.

57. *H. mortoni*, Theobald.

Like *H. frænatus* but with a larger thumb. Colour dark brown, mottled pepper and salt, with black spots and small white rosettes of six white scales each; tail barred with black above. A single immature male captured in Rangoon.

Nycteridium.—Günther.

A cutaneous expansion along the side. Claws five on all feet.

58. *N. platyurus*, Schn.

Colour olive above marked with darker; a pale lateral band, dark margined, beneath through the eye; a few white spots on the body and irregular dark brown and white alternate spots on the tail. The hind limb with a broad cutaneous fringe or expansion behind. Length four and a half inches. Found from the Himalayas to Burma but not actually recorded (?) from Burma.

Doryura.—Gray.

Tail depressed, with denticulate margins and a median row of enlarged scales below.

59. *D. berdmorei*, Blyth.

Back with minute, equal, granular scales. Colour grey with some indistinct markings about the head and a dark stripe from behind the eye carried down the side as a cateniform band. Grows to four inches. Inhabits Pegu and Tenasserim.

60. *D. gaudama*, Theobald.

Back with minute, equal, granular scales. Tail segmented. Colour grey without definite markings. Taken near Toung-ngoo in the north of the Tsit-toung valley.

61. *D. karenorum*, Theobald.

Back with twenty rows of small white tubercles. Tail segmented, each segment margined with a transverse row of spiny tubercles. Colour grey, with dark streaks on the back and limbs which fade after death. A pair taken in the Kareng stream near Toung-ngoo.

Peripia.—Gray.

A cutaneous fold on the ham. Toes five on all feet: claws four in front, five behind: thumb rudimentary and clawless: inner hind toes with a very minute setiform claw.

62. *P. peronii*, Dum. et Bib.

Three pairs of elongate chin shields. Back uniformly granular. Colour greenish-ashy, sometimes with a rosy blush during

life, or pale brown speckled with darker and numerous white spots; below white, pinkish towards the sides. Burmese specimens pale grey rather translucent and with pale whitish freckles scattered over the back. Inhabits Burma, the Andamans, Penang, &c.

63. *P. cantoris*, Günther.

Differs from the last in possessing no chin-shields but only a few slightly enlarged scales there. Colour olive-brown with some scattered velvet-black spots; beneath white minutely brown dotted. Inhabits Burma, the Andamans, Penang, &c.

Gymnodactylus.—Wiegman.

All the toes clawed: the two terminal joints free.

64. *G. variegatus*, Blyth.

Colour pink (grey in spirits) superbly spotted and marked with black, set off by subdued white; tail banded above with black and the terminal third blackish. A broad dark horse-shoe band from eye to eye over the occiput; back very irregularly marked with dark bands paler interiorly and with rather zig-zag borders. The type specimen alone known, from near Maulmain.

Family.—**Agamidæ.**

Pupils round. Tail not fragile. Femoral or præanal pores none.

Draco.—Linnæus.

Skin of sides expanded into a parachute. A gular sack in both sexes.

65. *D. maculatus*, Gray.—(Poot-theng-pyan, *Burm.*).

Tympanum scaly. Throat with small brown dots; upper surface of parachute with numerous whitish longitudinal stripes of scales and with black rounded spots. Inhabits Assam, Pegu, Tenasserim, Siam, etc.

66. *D. tæniopteris*, Günther.

Tympanum naked. Colour of back greenish irridescent; parachute with five arched black bands not extending to the margin, some forked at the base and continued faintly across the back. Inhabits Tenasserim and Siam.

Dilophyrus.—Gray.

67. *D. grandis*, Gray.

Colour of head, neck, throat and gular pouch gamboge, the scales edged with brown; the eyelids dark brown; tarsi buff, a dark blue streak from the eye to the nostril; labials and tympanum pale blue; seven oblique dark blue streaks down the throat; two brown

bands enclose the tympanum, meeting above; back purple-brown, changing to deep lilac on the sides; beneath white; side of the body with oblique series of lozenge-shaped spots, either red or bright gamboge; crests mulberry brown; the upper half of the foremost thirteen scales light green, and the foremost ten scales of the vertebral crest with their upper halves pale yellow; tail broadly banded white and brown; grows to twenty-two inches in length. Inhabits Pegu (Rangoon) and Penang.

Calotes.—Cuvier.

Tips of scales on sides directed backwards and upwards. A small gular sack.

a.—A fold before the shoulder.

68. *C. mystaceus*, Dum. et Bib.—(Poot-theng, *Burm.*).

Two groups of small spines over each tympanum. Colour ruddy brown with a white band from nostrils to shoulders. Colours very brilliant in the nuptial season. Inhabits Arakan, Pegu, Tenasserim, Siam, &c.

69. *C. emma*, Gray.

Three groups of small spines over each tympanum Colour olive-brown with dark dorsal bands interrupted by a pale side streak. Inhabits Pegu and Tenasserim and also the Kakhyeng hills.

b.—No fold before the shoulder.

70. *C. versicolor*, Daud.—Blood-sucker (Poot-theng, *Burm.*).

Colour pale brown with darker lozenges or bands along the back and a pale lateral line; two black specks on the occiput and some dark spots about the eyes. During the nuptial season the head and body of the males become blood-red. Inhabits Peninsular India, Arakan, Pegu and Tenasserim.

Acanthosaura.—Gray.

No gular sack; a fold before the shoulder; a spine behind the orbit.

71. *A. armata*, Gray.

Colour greenish-brown with roundish light spots; five or six black lines radiate from the orbit over the lip. Inhabits Tenasserim and the countries to the south thereof.

72. *A. sp.*

I once captured a specimen near Rangoon with an orange vertebral line. It might have been *A. capra*, Günther, but it was never identified and was subsequently lost.

Family.—**Uromasticidæ.**

Gregarious burrowing lizards whose food is mainly vegetable.

Liolepis.—Cuvier.

Skin of trunk lax forming a pseudo-parachute. Femoral pores twenty-six to thirty-eight.

73. *L. guttatus*, Cuvier.—(Pa-dat-tsa, *Burm.*).

Colour pale greenish-brown with dark marginal orange spots on back; sides barred with black and orange. Inhabits Arakan, Pegu, Tenasserim and the Malayan Peninsula.

It is highly esteemed as food by the Burmese and itself feeds eagerly on the pretty crocus-like kæmpferia flowers whose tender forms pierce the arid soil as the hot season begins to set in in April.

Order.—OPHIDIA.

Reptiles with teeth adnate to the jaws, not socketted. Mandibular rami disunited and freely separable, save in a few families (*Typhlophidæ, Uropeltidæ, &c.*) Cloacal orifice transverse. Generative organs bifid.

Sub-order.—*INNOCUOUS COLUBRINE SNAKES.*

Family.—**Typhlophidæ.**

Upper labials four. Rudimentary pelvic limbs hidden beneath the skin. Snout covered with large shields. Rostrals rounded.

Typhlops.—Dumeril et Bibron.

a.—Frontonasal in contact with the second labial.

74. *T. horsfieldii*, Gray.

Scales in twenty-six longitudinal rows. Colour blackish-olive above, gradually passing to a dull yellowish on the belly. Grows to seventeen inches. Inhabits Assam, Tenasserim, &c.

75. *T. bothriorhyncus*, Günther.

Scales in twenty-four longitudinal rows. Snout grooved. Colour uniform brown above and below, or with the terminal half of scales slightly paler. Grows to eleven inches. Inhabits Penang, Assam and, no doubt, Burma.

b.—Frontonasal separated from the labials by the nasal and præocular shields.

76. *T. braminus*, Daud.—(Mywe-tsheng-pyek, *Burm.*).

Scales in twenty longitudinal rows. Colour uniform brown, paler below. Grows to eight inches. Inhabits Continental India, Burma and the Malayan Archipelago.

Family.—**Tortricidæ.**

Ventral scales slightly enlarged. Upper labials four.

Cylindrophis.—Wagler.

Six upper labials. Eyes small; pupil round and surrounded by a supra-orbital, a postocular, two labials and the frontal.

77. *C. rufus*, Laur.

Width of interocular space longer than the snout. Sub-caudals six to nine. Colour brown; belly with white cross-bands extending up the sides (red seasonally ?); a red collar, and lower part of tail during life bright red. Grows to thirty inches. Inhabits Pegu, Tenasserim, and the Malayan Archipelago.

Family.—**Xenopeltidæ.**

Head depressed, not distinct from neck. Tail, short; tapering; no rudimentary pelvic limbs. Scales large, polished. Eye small. A mental fold.

Xenopeltis.—Reinwardt.

Upper labials eight. Loreal none. Scales in 15 rows.

78. *X. unicolor*, Rein.

Colour lustrous steel-blue, very irridescent, whitish below; young ones have a white head. Grows to nearly fifty inches. Inhabits Pegu, Tenasserim, the Malayan Archipelago, the Andamans, &c.

Family.—**Calamaridæ.**

Snakes of small or moderate size with some of the head shields united. Loreal none.

Calamaria.—Boie.

One pair of frontals. Eye small, pupil round. Scales in 13 rows.

79. *C. siamensis*, Günther.

Colour fleshy-grey with eleven very narrow black lines down the back; a yellow collar behind the head and another lower down. Grows to eight or nine inches. Inhabits Siam, northern Tenasserim (Toung-ngoo) and Pegu.

Family.—**Oligodontidæ.**

Head not distinct from neck. Maxillary teeth few, the last enlarged not grooved. Rostral large, extended backwards. Pupil round.

Simotes.—Dumeril et Bibron.

Præfrontals narrow. Nasals two. Scales smooth in 15—21 rows.

a.—Scales in 17 rows. Anal bifid. Loreal present.

80. *S. cruentatus*, Theobald.

Colour brown, below yellowish with square black spots; tail below bright coral red. Length fifteen inches. Inhabits Pegu.

81. *S. theobaldi*, Günther.

Very like the last but with a red vertical line, and back crossed by numerous narrow reticulated black streaks. Inhabits Pegu.

b.—Scales in 19 rows. Anal entire. Loreal present.

82. *S. bicatenatus*, Günther.

Lower præoculars the smaller. Colour varies from brown to brick red; a pale vertebral line; and a black dot on the end of each ventral; belly white, or occasionally salmon red. Grows to thirty-one inches. Inhabits Pegu and Tenasserim.

83. *S. amabilis*, Günther.

Colours: over forty black-edged yellow bars across the back, with others less distinct on the tail; beneath white with an irregular series of blackish spots along either side of the belly. Length ten inches. Inhabits the Arakan Roma hills.

Family.—**Colubridæ**

Body moderate. Head distinct from neck. Eye moderate.

Group Coronellina.—Ground Colubrides.

Colubrine snakes of small size, sub-equal teeth and smooth scales in 13—17 rows.

Ablabes.—Dumeril et Bibron.

Body cylindrical, somewhat slender. Ventrals not keeled. One loreal. Two nasals.

84. *A. scriptus*, Blyth.

Scales in thirteen rows. Upper labials eight. Loreal very small. Colour brown with a white collar over the nape and a few black dots along the spine; below white. Inhabits Martaban.

85. *A. bistrigatus*, Günther.

Scales in seventeen rows. Upper labials ten. Two posterior temporals. Colour ruddy brown, the red tinge fading posteriorly; head black, emitting a black band carried down either side to the tip of the tail; black spots on the neck continued down the tail; belly, two spots on nape, and occipital yellow. Nearly eleven inches.

Inhabits Pegu. This is the Burmese representative of the continental *A. humberti*, Jan., which it closely resembles.

86. *A. collaris*, Gray.

Scales in seventeen rows. Upper labials ten. One posterior temporal. Colour brown above, white below; a vertical series of black spots anteriorly; a black band between the eyes; another behind the occipitals and a black collar on the nape; ventrals with a dark splash on their ends and some median dots anteriorly. Grows to thirty-two inches. Inhabits Arakan and Upper Burma.

Group Colubrina.—True Colubrides.

Colubrine snakes of moderate or large size.

Coluber.—Linnæus.

Scales smooth or partly keeled in 19—27 rows. One loreal. Two præoculars.

87. *C. nuthalli*, Theobald.

Scales in twenty-three rows. Colour reddish-grey with four rows of elongated intensely black spots, each with a central pale ocellus; a black spot between the eye and the gape. Inhabits Pegu.

Compsosoma.—Dumeril et Bibron.

Scales keeled in 19—23 rows. One præocular.

88. *C. melanurum*, Schl.

Scales in nineteen rows. Colour brown before, black behind; behind the neck a yellow vertical band edged with black; a short black vertical streak below the eyes, another from orbit to gape, and a third from the temple to the belly breaking off into five black blotches. Grows to sixty-five inches. Inhabits the Malayan Archipelago and the Andamans (and Burma ?).

89. *C. radiatum*, Rein.—(Taw-gyee-leng: Leng-mywe, *Burm.*).

Scales in nineteen rows. Colour reddish brown; behind the neck four black stripes commence abruptly tapering off to about the middle of the body; sides of belly slaty. Grows to seventy-three inches. This is the common 'rat-snake' of the Province and ranges from Sikhim to the Malayan Peninsula, &c.

Ptyas.—Fitzinger.

Loreals one to three. Scales in 15—27 rows and smooth or faintly keeled.

90. *P. hexagonotus*, Cantor.

Scales smooth in seventeen rows. Loreal one. Colour brown; belly yellowish. Grows to sixty-two inches. Inhabits Arakan and the Malayan Peninsula.

91. *P. mucosus*, Lin.

Scales in seventeen rows (seven keeled). Loreals three. Colour brownish-olive; scales dark margined. Grows to ninety-one inches. Inhabits the Province generally, the Andamans and the Malayan Archipelago.

92. *P. korros*, Rein.—(Ngan-tsoung, *Burm.*).

Scales smooth in fifteen rows (a few faintly keeled). Loreals two. Colour same as last. Inhabits Sikhim, the Province generally, the Malayan Archipelago, &c.

It is not always easy to discriminate the two last species.

Zamenis.—Wagler.

An interspace before the lengthened posterior maxillary teeth.

93. *Z. fasciolatus*, Shaw.

Scales in twenty-three rows. Upper labials eight. Anal bifid. Colour uniform olive-green, or anteriorly barred with white stripes, posteriorly with brown. Grows to forty-one inches. Inhabits Tenasserim, &c.

Group Natricina.—Fresh-water Colubrines.

Tropidonotus.—Kuhl.

Head distinct from neck. Two præfrontals.

a.—Scales smooth in 15 rows.

94. *T. punctulatus*, Günther.

One præocular; three postoculars. Adult males dark above, white below. Females light brown, yellow mottled. Inhabits Pegu.

95. *T. zebrinus*, Blyth.

One præocular; three postoculars. Colour above plumbeous, obscurely black spotted; sides black banded; two or three distinct black bands across the nape. Inhabits Mergui.

b.—Scales keeled in 17 rows. Upper labials eight.

96. *T. angusticeps*, Blyth.

Præoculars two, three or four; postoculars four or five. Colour above plumbeous uniformly spotted with black; below white variegated with black behind. Grows to forty-one inches. Inhabits Arakan.

97. *T. nigrocinctus*, Blyth.—(Doung-lan-nee, *Burm.*).

Penultimate and preceding upper labial large. Colour reddish-brown passing into greenish on neck and head; along the back numerous black cross-bars not well defined. Grows to nearly twenty-seven inches. Inhabits Pegu and Tenasserim.

c.—Scales keeled in 19 rows. Upper labials nine.

98. *T. quincunciatus*, Schl.

Colour variable; brownish, greyish, or greenish-olive with from three to seven rows of dark spots down the body arranged more or less in quincuncial order and with yellow spots interpersed. Grows to fifty-one inches. Inhabits Peninsular India, the whole of Burma, the Malay countries, Mesopotamia, Southern China, &c.

99. *T. junceus*, Cantor.

Occipitals larger than vertical. Colour greyish-olive with a row of well defined whitish spots along either side of the back; ventrals and sub-caudals with a marginal dot. Inhabits Penang, Assam, and no doubt Burma also.

100. *T. bellulus*, Stoliczka.

Præfrontals smaller though longer than postfrontals. Colour olive-brown with a row of black dots down each side of the back. Inhabits the Tsit-toung valley near Toung-ngoo.

d.—Scales keeled in 19 rows. Upper labials eight.

101. *T. subminiatus*, Rein.

Præfrontals subtruncate in front. Colour olive brown passing into yellowish green on head and neck; body anteriorly handsomely reticulated with black and yellow. Inhabits Assam, the Province generally, &c.

Most of the above species of *Tropidonotus* have also subordinate dark markings on the head and body and some of them yellow also. In the nuptial season they are sometimes brilliantly adorned with red about the head and neck, and the young often have a collar on the nape which becomes faint with age.

Atretium.—Cope.

Scales rhombic, keeled, in 19 rows. Nasals two, with the nostrils on the upper part of the suture.

102. *A. schistosum*, Daud.—(Myit-shaw-mywe, *Burm.*).

Colour dark blackish-olive. Grows to twenty-five inches or more. Inhabits Bengal and the Malayan Peninsula and doubtless Burma also.

Family.—**Homalopsidæ.**

Fresh water or estuarine snakes. Nasals large. Nostrils small, valvular. Eye small. Caudals bifid.

a.—Scales smooth.

Gerarda.—Gray.

103. *G. bicolor*, Gray.

Scales in seventeen rows. One præfrontal. Colour muddy olive with a pale side stripe. Inhabits Pegu.

Cantoria.—Gerard.

104. *C. dayana*, Gerard.

Scales in nineteen rows. One præfrontal. Eye encircled by a ring of orbital plates. Colour dull yellow with numerous transverse dark bands with interspaces narrow above and wider below. Length thirty to fifty inches. Inhabits estuaries of Burma (Maulmain).

Fordonia.—Gray.

Scales in 25—29 rows. One præfrontal.

105. *F. bicolor*, Theobald.

Scales in twenty-five rows. One præfrontal. Loreal none. Upper labials five. Occipitals large. Colour yellowish-grey, dark spotted; sides and belly white. Inhabits estuaries in Burma (Rangoon).

Hypsirhina.—Wagler.

Scales in 19—25 rows. A single præfrontal. Pupil round. in a single shield.

106. *H. plumbea*, Boie.

Scales in nineteen rows. Colour brown with a well defined, dark-edged, yellow stripe; belly pale grey, each ventral having a dark central dot; a dark line along the ends of the ventrals and the median suture of the sub-caudals. Grows to twenty-one inches. Inhabits Pegu, Upper Burma, China, &c.

107. *H. enhydris.*—Schn.

Scales in twenty-one rows. Colour dark brown with a blue irridescence; a pale side stripe, dark margined above and below; along each side a supra abdominal stripe of salmon red. Inhabits Bengal, Pegu, Tenasserim, &c.

108. *H. maculatus*, W. T. Blanford.

Scales in twenty-five rows. Head short, very little broader than the neck. Muzzle broad, square, as if truncated, body stout, tail short and compressed. Colour blackish-ashy with a row of large irregular-shaped black spots down the back and another rather less in size, but each spot including several scales, down

each side; a blackish band down the margins of the ventrals caused by the dark edges of the shields and of the first row of scales on each side. Pegu (Bassein).

Ferania.—Gray.

Scales in 29 rows. A pair of very small præfrontals. Eye with vertical pupil. Nostril in a single shield.

109. *F. sieboldii*, Schl.

Colour pale brown with over thirty dark-margined brown spots; belly and sides yellow, the former black chequered. Grows to twenty-five inches. Inhabits Bengal, Pegu, &c.

Hipistes.—Gray.

Scales in 39 rows. Eye small. Pupil vertical. Nasals separated by a narrow præfrontal.

110. *H. hydrinus*, Cantor.

Colour greenish-yellow above, broadly barred with dark grey, bars (forty-four to fifty-eight) as broad as interspace but not reaching belly; beneath yellowish white. Grows to from twenty-one to fifty inches. Inhabits estuaries in Pegu.

This species has the colouration of *Hydrophis* (poisonous) but wants the *flat tail* of that genus.

b.—Scales keeled.

Cerberus.—Cuvier.

Scales in 21—25 rows. Two nasals. Two small triangular præfrontals. Eye surrounded by a ring of scales.

111. *C. rhyncops*, Schn.—(Re-mywe, *Burm.*).

Colour greenish-ashy, irregularly barred with black. Grows to forty-eight inches though specimens more than thirty-six inches are rare. Inhabits the coasts of India, Burma, the Andamans, &c.

Homalopsis.—Günther.

Scales in 37—47 rows. Nasal single. Eye surrounded by a ring of orbital shields.

112. *H. buccata*, Linn.

Præfrontal small; rarely divided. Colour olive with narrow, greyish, black-edged cross-bars; a brown triangular patch on the snout and two round spots on the occiput; usually a row of black spots along the sides of the belly, which is yellowish. Colouration variable and scales subject to great irregularities. Grows to forty-two inches. Inhabits Pegu, Tenasserim and the Malayan Peninsula.

Family.—**Achrochordidæ.**

Body covered with wart-like scales. Tail prehensile. Viviparous.

Chersydrus.—Cuvier.

Tail vertically compressed. Scales tubercular in over 100 rows.

113. *C. granulatus*, Schn.—(Koo-la-gouk: Ka-na-koot, *Burm.*).
Colour above dark grey, below yellow, in alternating ascending and descending stripes. Grows to thirty-seven inches. Inhabits the coast and estuaries of Burma and the Malayan Peninsula.
The flattened tail gives a certain resemblance to the *Hydrophis* (poisonous) with which it is associated in the estuaries.

Family.—**Psammophidæ.**

Scales smooth. Head distinct. Eye round or vertical. The last maxillary tooth grooved.

Psammophis.—Boie.

114. *P. condanurus*, Merr.
Scales in seventeen rows. Nasal single. Anal bifid. Pupil round. Head rather long and pointed. Colour buff or yellowish-isabelline brown; a dark stripe down either side of the spine and a broader one lower down the side; belly yellow. Grows to forty inches. Inhabits the Himalayas and Pegu.

Psammodynastes.—Günther.

Scales smooth, rhombic, in 17 rows. Nasal single. Pupil erect.

115. *P. pulverulentus*, Boie.
Head short and thick; long fangs in front. Colour light ochreaceous or uniform dark umber brown with irregular light reddish patches down the back and some black spots; body bordered below with orange; below yellow; throat white spotted and a white dot on each alternate ventral. Anderson says the dark colouration marks females and the lighter males. Grows to twenty-one inches. Inhabits Assam, Pegu and Tenasserim.

Family.—**Dendrophidæ.**

Eye moderate or large with round pupil. Scales narrow, imbricate. Ventrals keeled. Head narrow, depressed. Neck slender. Snout obtuse.

Gonyosoma.—Wagler.

Scales in 19—25 rows. Two nasals.

116. *G. oxycephalum*, Boie.

Scales in twenty-five rows, faintly keeled. Loreal very elongate. Colour uniform grass green, pale below. Grows to ninety inches. Inhabits Assam, Tenasserim, and Malayan Archipelago.

Dendrophis.—Boie.

Form very slender. Two nasals. Scales smooth in 13—15 rows. Vertebral enlarged, triangular or polygonal.

117. *D. pictus*, Günther.

Scales in fifteen rows. Colour bronze-brown with a lateral black-edged yellow band down the sides. Grows to forty-eight inches. The common tree snake of Pegu. Inhabits Central India, Pegu, the Andamans, &c.

Chrysopelea.—Boie.

Characters of *Dendrophis* but the vertebrals are less enlarged. Scales in 15—17 rows.

118. *Ch. ornata*, Shaw.

Scales smooth in seventeen rows. Colour black with bright yellow spots. Grows to fifty-three inches. The *Geckotidæ* form the principal food of this snake. Inhabits Bengal, Pegu, Tenasserim, &c.

Family.—**Dryiophidæ.**

Form excessively slender. Head pointed. Pupil horizontal, linear.

Tragops.—Wagler.

Snout pointed. Nasal single.

119. *T. prasinus*, Rein.—(Mywe-tsien, *Burm.*).

Loreal present. Upper labials nine. Scales smooth in fifteen rows. Colour green, or sometimes brown, with a pale yellow line along the sides. Grows to eighty-four inches. Inhabits Pegu, Tenasserim, Eastern Himalayas, &c.

120. *T. fronticinctus*, Günther.

Nasal very elongate, separating the rostral and præfrontals. Scales keeled in fifteen rows. Viviparous. Colour green or bronze-brown with a black, yellow margined, line along the sides. Colours vary much. Grows to thirty-six inches. Inhabits mangrove swamps on the Arakan coast and takes readily to the water when alarmed.

121. *T. javanicus*, Stein.

Resembles *T. prasinus*, only the fifth upper labial is nearly as large as the sixth and broad whereas in that species it is narrow. Colour green with four white longitudinal stripes on the belly. Inhabits Java and Pegu.

Passserita.—Gray.

Form very slender. Snout pointed and ending in a flexible appendage. Pupil horizontal. Scales smooth in 15 rows. Ventrals not keeled. Loreal none.

122. *P. mycterizans*, L.—(Mywe-tsien-myee-shay, *Burm.*).

Colour bright grass-green, paler below, with a yellow line down each side. Sometimes brown. Grows to seventy-two inches. Inhabits Bengal, Upper Burma and Northern Pegu.

Family.—**Dipsadidæ.**

Body vertically compressed. Head triagonal. Scales smooth. Vertebrals enlarged. Tree snakes.

Dipsas.—Laur.

Head very distinct from neck. Posterior maxillary tooth grooved.

123. *D. multimaculata*, Schl.

Scales in from seventeen to nineteen rows. Colour pale reddish-olive with a series of round spots, pale within and edged with white without, down each side of the spine, with a series of smaller ones below. A very handsome snake. Grows to thirty-five inches. Inhabits Pegu, Tenasserim, Siam, the Malayan Peninsula, etc.

124. *D. ochracea*, Theobald.

Scales in from seventeen to nineteen rows. Colour uniform ochraceous or dusky-grey. Grows to thirty-five inches. Inhabits Tenasserim.

Family.—**Lycodontidæ.**

Head depressed. Eye small with vertical pupil, maxillary with a fang in front.

Lycodon.—Boie.

Loreal present. Two nasals.

125. *L. aulicus*, L.—(Iem-kywek-mywe: Kyek-oo-kho-mywe, *Burm.*).

Scales smooth in seventeen rows. Loreal large. Præfrontals very small. Præocular in contact with vertical. Colour reddish-

brown, barred and reticulated with yellow or white; sometimes uniform with no markings. This is the "carpet-snake" and greatly resembles the poisonous *Bungarus cœruleus*. It grows to twenty-four inches. It inhabits the whole Indian Peninsula and Burma, the Andamans, Nicobars, Phillippines, &c.

126. *L. jara*, Shaw.

One loreal pointed behind. Colour brown, each scale with two yellow dots. Grows to 16·50 inches. Rare in Pegu.

Tetragonosoma.—Günther.

Loreal none. Two nasals. Nostril between two shields.

127. *L. atropurpureum*, Cantor.

Colour deep purple marbled with white and black; below pearly. Inhabits Mergui. The type is lost and no second specimen has been found.

Family.—**Amblycephalidæ.**

Body slender. Head very distinct. Pupil vertical. Nasal single. Vertebrals enlarged. Mandible not expansile.

Pareas.—Wagler.

Scales smooth or faintly keeled in 15 rows. Caudals bifid.

128. *P. margaritophorus*, Jan.

Loreal small. Six or seven upper labials. Eye bordered below by several (five to seven) small shields which exclude the labials from the orbit. Three pairs of large transverse gulars. Colour uniform ochraceous with traces of obsolete vertical bars on the body; two converging dark lines on the nape. In the young the colour is rich reddish-brown with reticulations of deep claret-red and white; a conspicuous white collar on the nape mottled with claret-red. Grows to twenty-four inches. Inhabits Tenasserim.

129. *P. modestus*, Theobald.

Loreal moderate. Two small præoculars. Vertebrals not enlarged, but the four centre rows faintly keeled, a band-like subocular excluding the upper labials. Three pairs of large transverse gulars. Colour above uniform brown, below pale yellowish. Inhabits Pegu (Rangoon).

Family.—**Pythonidæ.**

Large snakes with prehensile tails and pitted labials. A spur-like prominence on either side of the vent in adults, indicating a rudimentary limb beneath the skin.

Python.—Daudin.

The anterior half of the head shielded, the remainder scaly.

130. *P. reticulatus*, Schn.—(Tsa-ba-gyee, *Burm.*).

The first five upper and the thirteenth to the nineteenth lower labials deeply pitted. Colour rich lustrous grey superbly reticulated with black, with some yellow; head yellow with a median black streak and two black dots on the occiput. Grows to about thirty feet but specimens over twenty feet are rarely seen. Inhabits Pegu, Tenasserim, the Nicobars, the Malayan Peninsula, &c.

131. *P. molurus*, L.

Two anterior upper and four lower labials pitted. Colour light greyish-brown; a brown sub-cordate spot on the head and nape, a vertebral series of large quadrangular spots. Grows to about the same size as the preceding. Inhabits the Malayan Peninsula and perhaps Tenasserim; less common than the last.

Sub-Order—*VENOMOUS COLUBRINE SNAKES.*

A poison gland communicating with non-erectile, grooved maxillary fangs. Loreal shield absent.

Family.—**Elapidæ.**

Tail conical. Terrestrial. Pupil round.

Naja.—Laurenti.

Neck dilateable into a hood. Scales smooth in 15 rows (more numerous on neck).

132. *N. tripudians*, Merr.—(Mywe-houk, *Burm.*).

Neck very dilateable under excitement. Sub-caudals bifid. Colour pale yellow, brown or black; head marked with a spectacle like ornament or an ocellus only; the latter most common in Burma. Grows to seventy inches. Inhabits India, Burma and the larger Asiatic islands.

133. *N. elaps*, Schl.—(Ngan-than-gweng, *Burm.*).

No hood. Anterior sub-caudals entire. Colour olive with pale, dark-edged, cross-bands; throat yellow; belly often clouded with slaty. Young jet black with white markings. Grows to one hundred and forty-seven inches. Inhabits India, Pegu and Tenasserim.

Callophis.—Gray.

Scales smooth in 13 rows. Vertebrals not enlarged. Pupil round. Body long and slender.

134. *C. intestinalis*, Laur.

Six upper labials. Colour buff and black; a red, black-edged, vertebral stripe; belly yellow (seasonally red?) with black cross-bars. Grows to twenty-four inches. Inhabits upper Burma, Borneo, Sumatra and the Phillippines.

The poison glands of this species are most remarkable, being more than a third of the length of the body.*

135. *C. trimaculatus*, Daud.—(Mywe-tha-mya-a-hpa, *Burm.*).

Six upper labials. Colour light bay lineately brown dotted; head yellow spotted; belly red. Grows to twelve inches or more. Inhabits Tenasserim.

136. *C. maculiceps*, Günther.

Seven upper labials. Colour uniform pale brown with a double chain of thirty-six black dots down the back; a black ring at the end of the tail and a black escutcheon over its base. Grows to twenty-four inches. Inhabits Pegu, Tenasserim and the Malayan Peninsula.

Bungarus.—Daudin.

Scales smooth in 13—15 rows. Vertebral scales enlarged. Pupil round. Body ridged.

137. *B. cæruleus*, Schn.—(Ngan-wa, *Burm.*).

Colour varies from brown to blue-black, more or less reticulated with white. Grows to fifty-four inches. Inhabits India generally, Pegu, Tenasserim, and the Andamans. This is the dreaded "krait" of India; it is rare in Burma.

138. *B. fasciatus*, Schn.—(Ngan-taw-kya: Ngan-kwek *Burm.*).

Colour of body alternately ringed black and yellow, head black, throat and belly yellow. Grows to sixty-five inches. Inhabits India generally and Burma; is common about Rangoon.

139. *B. flaviceps*, Rein.

Scales in thirteen rows. Colour black; head, neck and a narrow ventral line bright red; belly red and black. Grows to seventy-three inches. Inhabits Tenasserim, Penang, Java, Borneo, &c.

SEA SERPENTS.—(Kyat-loon, *Burm.*).

The sea off the coasts is tenanted by a family of snakes (HYDROPHIDÆ) very rich in individuals and species (some thirty or thereabouts) and numbers are carried by the tide into the mouths and for some distance up rivers† where the incautious bather runs no small risk from them. They are all characterized by a vertically

* Vide Stoliczka in J. A. S. B. 1870, pt. ii., p. 212.

† They have been captured at and above Bassein.

compressed tail* which is used in swimming and by the presence of a poison fang. The fangs are small and the poison, though slow in operation, is very fatal. Some hours have been known to elapse between a bite and the manifestation of its effects which sometimes do not prove fatal for one or two days.† This remarkable peculiarity of the venom of the HYDROPHIDÆ may be due to the small size of their fangs and to the minute quantity of venom injected through them. On shore, where they never willingly venture, they are sluggish and helpless.

Sub-order.—*VIPERINE SNAKES.*

Snakes furnished with long, tubular, erectile fangs on an extremely short maxillary bone.

Family.—**Viperridæ.**

Scales keeled. No pit in the loreal region. Pupil vertical. Viviparous.

Daboia.—Gray.

Nostril very large; caudals double. Head covered with scales.

140. *D. russellii,* Shaw.—(Mywe-bwe, *Burm.*).

Scales keeled in twenty-nine to thirty rows. Head depressed. Physiognomy forbidding. Colour reddish-brown with three rows of black white-edged annular ocelli down the back and sides; head elegantly marbled; belly yellowish marbled with brown. Grows to fifty-four inches. Inhabits India generally and Pegu as far south as Rangoon.

This snake, the 'Tic polonga' of Ceylon, the 'Chanda bora' of Bengal, the 'Cobra monil' or 'necklace snake' of early English and Portuguese writers, disputes with the cobra the claim of being the deadliest snake in the world. Unlike the cobra which does not look poisonous no one can gaze on a large Russell's viper without shuddering; so clearly savage and dangerous does it look, and its repulsive appearance is so true an index of its character that if the animal is so confined that it cannot fasten on its captor, it will, in its rage, bury its long fangs deep in its own body rather than be foiled altogether in satisfying its revengeful promptings.

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* In this they resemble *Hipistes hydrinus* and *Chersydrus granulatus*, both of which are harmless: the possession of a loreal shield by the former and of over 100 rows of scales by the latter clearly differentiates them from the poisonous HYDROPHIDÆ.

† In an experiment at Bassein by Dr. Oswald Baker, of the Indian Medical Service, a fowl bitten by a very fatigued Hydrophis died in a short time *(Edit).*

Echis.—Merrem.

Head covered with keeled scales but with a pair of very small frontals behind the rostral. Caudals single. Scales keeled in 25—29 rows.

141. *E. carinata*, Schn.

Two rows of scales next the ventrals enlarged and deflected. Colour brown, an undulating pale line down each side joined, across the back, by some pale dark-edged bars; crown of the head dark with a pale central lozenge and a dark stripe from the eye to the gape. Grows to twenty-four inches. A very active and irascible snake. Inhabits the Punjab and Central India, and has been recorded from the frontier by the late Dr. Maingay (in a MS. list of snakes of Burma) who is my authority for including it in the Burmese Fauna.

Family.—**Crotalidæ.**

Scales keeled. Deep pit in the loreal region, whence these snakes are known as "pit vipers". Pupil vertical.

Trimeresurus.—Günther.

Head triangular; forepart only shielded. Tail prehensile. Scales keeled in 17—27 rows. Sub-caudals divided.

a.—Second upper labial forms the front of the facial pit.

142. *T. gramineus*, Shaw.—(Mywe-tsien, *Burm.*).

Scales in nineteen to twenty-one rows. Supra nasals separated by one or two shields. Colour grass-green; lighter on the sides; beneath pale greenish; a yellow or brick-red line along the outer row of scales; tail sometimes reddish. Grows to thirty-two inches. Inhabits Sikhim, Pegu, the Andamans, &c.

143. *T. erythrurus*, Cantor.

Scales in twenty-one to twenty-three rows. Supra nasals usually in contact. Colour similar to the last. Grows to thirty-three inches. Inhabits Bengal, Upper Burma, Pegu, Tenasserim, Siam, &c.

144. *T. carinatus*, Gray.

Scales strongly keeled in twenty-three to twenty-five rows. Supra nasals usually separated by one or two shields. Colour grass-green; tail rusty. Grows to thirty-seven inches. Inhabits Sikhim, Pegu, Tenasserim and the Andamans.

There are no snakes, not excepting the HYDROPHIDÆ, so difficult to distinguish specifically as the numerous and closely allied species of *Trimeresurus* and until a large number of well preserved

specimens from all localities is brought together the synonomy of the group must remain uncertain. These snakes should be eviscerated and preserved in strong spirit as they are prone to decompose and then become valueless for museum specimens.

b.—Shield in front of facial pit divided from the second upper labial.

Found in the Andamans, Nicobars and elsewhere, but not in British Burma as far as is at present known.

Order.—BATRACHIA.

Reptiles which normally pass through an aquatic or larval stage, with gills and natatory tail. Males unprovided with external generative organs. Amnion and allantris none (as in fishes).

Sub-order.—*BATRACHIA SALICUTIA.*

(*Frogs and Toads.*)

Body of adult tailless and with four developed limbs.

a.—Water frogs.

Oxyglossus.—Tschudi.

Fingers free; toes webbed. Vomerine teeth none.

145. *O. linea*, Tsch.
146. *O. lævis*, Tsch.

Both of these small frogs occur at Maulmain and doubtless range throughout Tenasserim.

Rana.—Linnœus.

Fingers free; toes webbed. Two groups of vomerine teeth.

147. *R. tigrina*, Daud.—The Bull frog (Hpa, *Burm.*).

Tympanum moderate. Body six or seven inches long. Inhabits India and Burma.

148. *R. fusca*, Blyth.

Tympanum indistinct. Body grows to six inches. The "Tenasserim bull frog" is described by Anderson as partaking of the characters of the last and following species. Tenasserim.

149. *R. kuhlii*, Schl.

Grows to over four inches. Colour brown above marbled with darker. (Tenasserim ?).

150. *R. cyanophlyctis*, Schn.

Grows to two and a half inches. Inhabits Pegu.

151. *R. gracilis*, Wieg.

Grows to one and three quarter inches. Inhabits the whole of Burma.

152. *R. liebigii*, Günth.

Tympanum hidden. Grows to nearly five inches. Inhabits Tenasserim and probably the whole of Burma.

Xenophrys.—Günther.

Fingers and toes free. Tympanum small. No parotoids.

153. *X. monticola*, Günth.

Skin smooth but with a Y-like fold on the nape. Inhabits Sikhim, the Khasi and the Arakan hills.

Hylorana.—Tschudi.

Skin smooth. A glandular fold along the side of the back. Fingers free: toes webbed, all with terminal ill-developed disks.

154. *H. erythræa*, Schl.
155. *H. tytleri*, Theobald.
156. *H. macrodactyla*, Günther.
157. *H. macularia*, Blyth.
158. *H. granulosa*, Anderson.
159. *H. nigrovittata*, Blyth.

Diplopelura.—Günther.

Head small. Tympanum hidden.

160. *D. carnaticum*, Jerdon.
161. *D. intèrlineatum*, Blyth.

This remarkably lovely frog is found in Pegu and Martaban harbouring under stones. It hardly attains to two inches in length.

162. *D. berdmorei*, Blyth—(*Callula natatrix*, Cope).

This frog, which is extremely common in Pegu, is of an entirely different habit to the last. It is very aquatic with webbed toes and powerful and disproportionately large hind limbs. Grows to nearly two inches.

b.—Ground frogs (or toads).

Callula.—Gray.

Head small, with short snout. Limbs feeble. Fingers and toes with dilated (clubbed not paletted) tips. Colours and markings bright. A crawler with no relation to the tree frogs with which it has been ranged.

163. *C. pulchra*, Gray.

Back brown; sides red; limbs and belly marbled. Grows to three inches and more. Common in Pegu and Tenasserim.

164. *C. guttulata*, Blyth.

Magnificently marbled above with anastomosing kidney-shaped spots, olive and orange; but the colours are variable. Grows to over three inches. Inhabits Pegu.

Glyphoglossus.—Günther.

Head short; eye small. Tympanum hidden. Toes webbed. Limbs rather feeble. Body globular.

165. *G. molossus*, Günther.

Lower jaw furnished with a truncated leathery disk in front. Grows to two inches. Inhabits Pegu.*

Nireus.—Theobald.

Somewhat of the habit of *Diplopelura* but with a broad bufonine gape.

166. *N. pulcherrima*, Theob.

Colour silvery-grey, marked above with regularly disposed spots of intense velvety black. Pupil lozenge-shaped; half of it coloured brilliant orange. Grows to about an inch. Inhabits the Arakan hills.

The above meagre description is from memory as all my specimens were lost. It is a species of singular beauty and cannot be mistaken if rediscovered.

Bufo.—Laurenti.

Teeth none. Parotoids swollen. Fingers free. Skin warty.

167. *B. melanostictus*, Schn.—(Hpa-pyoot, *Burm.*).

The common Indian toad. Inhabits India and Burma.

These inoffensive animals are useful in gardens from the quantities of noxious insects and mollusca they consume. They frequently enter houses in the evening in search of insects and, if satisfied by experience of the friendly feelings of the owner, lay aside much of their natural timidity and may, with a little pains, be domesticated.

168. *B. asper.*

Tympanum very small. A conspicuous groove along the vertebral line. Grows to five inches. Inhabits Mergui.

c.—Tree frogs.

Polypedates.—Dumeril et Bibron.

Vomerine teeth. No glandular fold along the back. Fingers and toes terminating in flat expansile disks adapted for pneumatic adhesion to smooth surfaces. Habits crepuscular.

* See Pro. Zool. Soc., Lond., 1868—Plate xxxviii.

169. *P. maculatus*, Gray.

Back spotted; limbs barred; upper lip white. Colour grey. Females attain to over three and a half inches; males much less. Inhabits India and Burma.

170. *B. quadrilineatus*, Wieg.

Very like the last but four longitudinal streaks down the back. Inhabits Pegu and Tenasserim.

171. *P. lividus*, Blyth.

Much larger than *P. maculatus*, growing to over three and a half inches. Colour, during life, olive-green (?). Inhabits Tenasserim.

Ixalus.—Dumeril et Bibron.

This is really little more than a section of the last genus from which it differs only in wanting the vomerine teeth.

172. *T. cineraceus*, Stoliczka.

Inhabits Maulmain.

The above is a bare list of Burmese frogs, no doubt far from an exhaustive one and one which will be added to considerably when the country has been properly examined and larger collections of these animals made than exist at present. No specimen, I believe, of the next sub-order of Newts or Tritons has hitherto been taken within the political limits of British Burma, but I give the species which have been found in adjacent regions and which may hereafter be detected in the Province.

Sub-order.—*BATRACHIA GRADICUTIA.*

(*Newts or Tritons.*)

Body lizard-like, naked, with two or four legs. Tail vertically compressed for swimming and persistent.

Plethodon.—Tschudi.

Body with vertical folds on the side. Tail scarcely compressed. Toes four in front, five behind.

(i). *P. persimilis*, Gray.

This species has been recorded from Siam and it or an allied form may perhaps extend into Burma.

Tylotriton.—Anderson.

A line of large, round, porous, glandular tubercles down each side of body. Skin finely tubercular.

(ii). *T. verrucosus*, Anderson.

Colour uniform blackish brown, paler on lips, chin and beneath; under surface of tail orange. Inhabits Western Yunan, Sikhim, &c.*

Sub-Order.—*BATRACHIA APODA.*

Body snake-like, without limbs. Skin smooth. Body encircled with numerous annular folds of the cuticle.

Epicrium.—Wagler.

A small groove in front of and below the eye.

173. *E. glutinosum*, L.

Body with some three hundred annular folds from the neck to the end of the tail. Colour black with a yellow line down each side. Grows to about fifteen inches. Inhabits Arakan and Tenasserim.

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* See Pro. Zool. Soc., Lond., May 1871.

CHAPTER XIX.

ICHTHYOLOGY.

(COMPILED FROM DR. DAY'S REPORTS AND HIS "FISHES OF INDIA", MASON'S BURMA AND BEAVAN'S "THE FRESH-WATER FISHES OF INDIA".)

The fishes of Burma may conveniently be divided into marine, sub-marine, and fresh-water, and each of these divisions into migratory and non-migratory; the marine being those found only in the sea and its immediate neighbourhood, the fresh-water those never found there and the sub-marine those which ascend rivers for breeding or predatory purposes.

The non-migratory marine fish are found along the shores and in back-waters and some in the deep sea but many, though for convenience termed non-migratory, change their places of residence at certain seasons of the year either to follow their food or to escape from rough into quiet waters. These breed along the coasts and the young subsequently pass into small estuaries, creeks and rivers for security and for suitable food. Amongst the various forms there are great differences and some are much more predaceous than others.

The migratory sea fish again are (i) predatory and (ii) those which are not predatory or not so much so, and amongst each of these are gregarious and non-gregarious species, the gregarious being those which arrive in vast shoals at certain seasons for breeding purposes or in search of some particular food to be found there at that season, the predaceous, for instance, following the non-predaceous. Amongst the predaceous the gregarious are hardly so numerous as those which are not so and are mostly found amongst the Acanthopterygii, as well as among the Chondropterygii: the non-gregarious are exceedingly numerous and of very varied characters; amongst the most voracious are the sharks, rays, and allied forms. Of the non-predatory gregarious marine fishes the most common are the Mackerel, *Scomber kanagurta*, and the Anchovies, *Engraulis*: the non-predaceous and non-gregarious are abundant only at certain seasons and amongst some kinds there appears to be a constant migration, probably not solely for breeding purposes.

It is not uncommon to find true marine fishes in pieces of fresh or brackish water not far removed from tidal influence; this is due to their having entered when the monsoon was at its height and remaining until, by the falling of the waters, all means of exit was cut off.

The sub-marine fish are all migratory and are much less capricious in their arrival on the coast than are those which do not leave the sea. Amongst those which ascend for breeding purposes are *Sciæna coitor*, some Mullets as *Mugil corsula*, and especially the Hilsa, *Clupea palasah*. Of these last those below one year of age seem not to breed, or if they do not till the end of the season or the commencement of the next, whilst those of more mature age breed at the beginning or at the end of the rains. The main body swarms up the large rivers generally as soon as the south-west monsoon commences but not always at the same period, the time depending upon the rapidity of the current and other causes. Amongst the predaceous river-ascenders is especially a large sea perch, *Lates calcarifer*, which pursues the Hilsa for several hundred miles.

The fresh-water fishes are either hill fishes or those of the plains which are further sub-divided into non-migratory and migratory. The non-migratory hill fishes, such as *Nemacheilus*, live in the main mountain rivers, the migratory, such as various barbels, ascend small side streams to breed. The non-migratory fishes of the plains reside in tanks and rivers, and of these the **Ophiocephalidæ** and the siluroid magurs may be taken as examples. Amongst the migratory or those which ascend rivers at particular seasons are some of the carps (*Labeo*) and others.

Reproduction.

Amongst the non-migratory sea fishes there are different modes in which the young are produced though where many kinds deposit their ova is uncertain. In some of the siluroids the eggs are deposited in the mouth of the male and are there carried about till hatched; they continue breeding for several months and seem to lay their eggs in batches. Amongst the cartilaginous fishes, some, such as the sharks and their allied species, are viviparous, others deposit ova enclosed in quadrangular horny cases furnished with filaments at either extremity for the purpose of attachment to suitable spots.

Amongst fresh-water fishes the migratory seem to produce the greatest number of eggs whilst carps in the hilly regions have, it would seem, a larger proportion of eggs than those in the plains. Amongst the non-migratory, also, there is a difference, the monogamous not depositing so many as the polygamous as a general rule, and the former protecting their eggs. The non-migratory hill fishes breed in water wholly or partially obtained from snows or in affluents of the main streams which the parent fishes ascend with the first monsoon floods and having deposited their ova return to the main river as the amount of water diminishes; the eggs are

not hatched in sufficient time for the fry to come down and they remain behind for another year, growing slowly and remaining small until the next year's rains enable them to escape. The breeding of the migratory hill fishes is carried on in much the same way, many of the young remaining behind in the pools, and the parents gradually descending to the rivers of the plains in search of food and, if the upper portions are not of much depth, extending their range far down.

Of the non-migratory fish of the plains the monogamous **Ophiocephalidæ** are the best known. Some reside in tanks, others prefer rivers where they live in deserted holes they find in the banks. The tank varieties delight in lying in the grassy edges where the water is just sufficiently deep to cover them. *Ophiocephalus striatus* breeds twice a year in June and December, the male constructing a nest with his tail amongst the vegetation and biting off the ends of the weeds that grow in the water; here the ova are deposited, the male keeping guard, but should he be killed or captured the vacant place is taken by his partner. When the fry are hatched out they are defended by their parents with great courage. They may generally be seen swimming just below the surface of the water in one or two lines a little above their progenitors: as they increase in size they are usually driven away by their parents or, it is said, are eaten by them if they do not disperse. *Nandus marmoratus*, also, builds nests amongst the grass and rushes at the margin of the water and keeps guard over the eggs, and some of the gobies construct nests. The polygamous non-migratory fishes of the plains such as the smaller carps, *Clarias magur* and *Sacchobranchus fossilis* are very numerous. These during the rains pass up small water-courses or channels in order to deposit their ova in irrigated fields, flooded plains, temporarily formed tanks or along the grassy banks. The migratory fishes of the plains, which do not as a rule ascend to the rivers of the hills to breed, are generally larger and stronger than the non-migratory. Amongst them there do not appear to be any of the Acanthopterygii. Many of the carps are affected by the monsoons and at periods of inundation migrate for breeding purposes.

Breathing.

Amongst the fresh-water fishes are some remarkable variations in the modes of respiration. In some cases oxygen is obtained from the air held in suspense in the water, from which it is separated at the gills, as in the Cyprininæ and in some siluroids as the *Macrones*, which can live without rising to the surface; in others, though the fish are to some extent "water-breathers", yet they also inspire direct from the atmosphere no matter how cool and charged

with air the water may be, and if unable to inhale atmospheric air they become poisoned by the carbon existing unremoved from their circulation; amongst these are *Anabas scandens*, *Trichogaster fasciatus* and the **Ophiocephalidæ** which possess a cavity above the gills for the purpose of the reception of air; the siluroid genus *Clarias* has a subsidiary breathing apparatus attached to the branchiæ, and the Scorpion fish, *Sacchobranchus fossilis*, has a long air vessel extending throughout the muscles of the back which communicates interiorly with the gills; these can live in liquid mud. The difference is easily perceptible when specimens of different kinds are placed together in an aquarium; *Macrones carcio*, for instance, has its gills in constant excited movement whilst the **Ophiocephalidæ** scarcely raise theirs but at intervals rise to the surface and open their mouths and take in air. Thirdly, there are some fish as the **Rhyncobdellidæ** which appear to swallow air but do not seem to possess any special breathing apparatus.

The respiratory organs are closely connected with the hitherto unexplained œstivation of some of the fresh-water fishes; after a heavy fall of rain numerous fish will be found in places which were dry before, whilst living fish (*Ophiocephalus punctatus*, *Rhyncobdella aculeata* and *Amphipnous cuchia*) have been dug out from two feet below the dry surface.

Fishes of the Acanthopterygian order are not found in any great numbers in the inland fresh-waters but are mostly confined to the plains, either within or but a short distance removed from tidal reach or above the sea level, or along the coasts. The larger the river the greater the probability of these fishes extending their range up it.

Some of this order attain to a large size and are very predaceous. Those residing in the deep sea or off marine banks are generally of excellent sorts for the table.

Those found in inland tanks far from the sea or the bed of large rivers are *Ambassis*, *Gobius giuris*, *Ophiocephalus*, *Rhyncobdella* and *Mastacemblus*.

The **Percidæ** are almost entirely marine or sub-marine; there are representatives of six genera:

Lates are sub-marine, ascending rivers for very long distances for predatory purposes during the rains, and furnish isinglass.

Serrani or Sea-perches, attain a large size and are esteemed for food but the flesh is coarse when they are very large; some of them yield isinglass.

Ambassis are marine and fresh-water and are polygamous; they are very small and of little use.

Therapon are estuarine, sometimes found above tidal influence, and are very inferior as food.

Datnioides are estuarine, and do not ascend above tidal influence.

Gerres are marine and ascend above tidal influence; the flesh is deficient in flavour and the bones are numerous and in consequence fishes of this genus are little esteemed as food when fresh, but they dry well.

Of the **Squamipinnes** individuals of three genera are found:

Chætodon is purely marine.

Scatophagus is a marine genus, entering back-waters and rivers; they are foul feeders and are not much eaten.

Toxotes are found in and above tidal influence in the large rivers.

The **Nandidæ** of Burma are found in brackish and fresh-waters and are polygamous: they belong to the genera *Badis*, *Nandus* and *Pristolepis*.

The **Sparidæ** are marine, some entering rivers: *Crenidens* and *Chrysophrys* are the only two genera hitherto found.

Amongst the **Polynemidæ** are some of the most valuable of sea fish, all as food, and one species, *Polynemus paradiseus*, on account of the isinglass it produces. They are found where large rivers debouch into the sea. The only genus is *Polynemus*.

The **Sciænidæ**, of which there are two genera, *Sciæna* and *Sciænoides*, are valuable for the isinglass which, though rather inferior to that of the **Percidæ**, is larger in quantity, and as food, though the flesh of the young is insipid and of the full grown tough; *Sciænoides pama* is termed *Whiting* in Calcutta. Both are marine, ascending rivers.

The **Trichiuridæ** are represented by one species of the only genus, *Trichiurus haumela*, found in the seas and estuaries. They are not much esteemed as food though they afford very delicate eating when fresh.

The **Carangidæ**, or Horse-mackerel, of which there are three genera, *Chorinemus*, *Psettus* and *Equula*, are numerous and are of considerable importance.

The **Stromateidæ**, or Pomfrets, are common all round the coast. The Grey pomfret (the full grown of *Stromateus cinereus*) is considered better eating than the Silver pomfret (the immature of the same species) and both are surpassed by *S. sinensis*, which should be cooked when quite fresh.

Of the **Scombridæ**, or Mackerels, two genera, *Scomber* and *Cybium* are found. This family is important as food.

The **Trachinidæ** have only one genus, the highly esteemed *Sillago*, or *Whiting* of Madras, some species of which ascend estuaries and rivers.

The **Batrachidæ** are represented by *Batrachus gangene*, a repulsive looking frog-fish found in estuaries.

Both genera of the **Pediculati**—*Antennaris* and *Halicutæa*—are found. The pectoral fins are pediculated enabling them to walk or hop over the ground.

The **Cottidæ** which, like the two preceding, are marine and are avoided as food, have only one genus in Burma, *Platycephalus*, or Crocodile fish. They are armed with dangerous spines.

The **Gobiidæ**, or Gobies, have seven and possibly eight genera. They are mostly littoral (except *Gobius giuris* which is a monogamous fresh-water fish) and are of use as decoying the larger fish in shore.

The **Rhyncobdellidæ**, or Spined eels, which are fresh-water, are common throughout the country and the **Mugillidæ** or Mullets, which are most useful as food, are partly marine and partly fresh-water, as are the **Ophiocephalidæ**, or Snake heads, which are very abundant and extensively eaten, *O. striatus* especially by invalids.

The **Labyrinthici**, in which is included the curious climbing perch, *Anabas scandens*, which is able to travel short distances on land, are fresh-water and the **Pomacentridæ** marine.

Of the Anacanthini or spineless fishes, all of which are marine, there are the little *Bregmaceros atripinnis*, allied to the Cod family, and the **Pleuronectidæ** allied to the Flat fishes or 'soles,' coloured only on the upperside and swimmers close to the bed of the sea, most numerous and attaining the largest size in the discoloured water near the mouth of large rivers.

The great majority of the fresh-water fish belong to the order Physostomi, in which the air vessel communicates with the pharynx by means of a pneumatic duct. Members of one of the families of this order, the **Siluridæ**, are destitute of scales whilst they are present in the **Cyprinidæ**, which have no teeth in the jaws or palate, and also in the Herring (**Clupeidæ**), the majority of which have a trenchant or cutting abdomen and generally a few minute teeth in the jaws or palate.

The **Siluroidæ** are commonly known as Cat-fish as they generally possess a number of long barbels arranged round the mouth: the more numerous and developed are these barbels the more adapted the fish appear to be for an inland and a muddy residence, whilst on the contrary those which are strictly marine do not appear to be so well furnished with these appendages. They are generally armed with long strong spines in the dorsal and

pectoral fins, which as a rule are serrated, and with these they can inflict wounds which are often very severe. They are very numerous existing in almost every piece of fresh-water whilst the larger rivers contain some monsters.* Most of the siluroids are very long-lived when out of the water. As a rule, they are foul feeders more especially when there are no small fish for them to prey upon. Some are migratory during their breeding season which is in the rains. They appear to prefer muddy bottomed tanks and sluggish rivers avoiding pebbly streams more especially if the water in them is cold; even amongst those which are marine they seem to prefer muddy to clean water. Some, even of the larger ones, reside during the dry season in swamps and places where they could not live were it not for a sufficiency of small fish which also retreat thither and afford them sustenance till the rains recommence and they can move about again.

The marine species are common on the muddy coasts and are most abundant in the Mergui Archipelago.

The fresh-water siluroids may be divided into those of the hills and those of the plains, the former being small and often possessing a thoracic adhesive apparatus, whilst the latter are large and possess no adhesive apparatus unless they are also common to the hills. In some which are thus provided not only is this apparatus very distinct whilst residing in mountain streams but even their pectoral and ventral rays are plaited anteriorly; these additions, however, are indistinct or completely absent in specimens of the same species when their size is larger and they have been captured in the rivers of the plains.

This family is useful as food but the flesh is rich or else hard and indigestible and the flavour generally insipid. It is preferred by the Burmans for fish paste as it is scaleless. It is also useful as furnishing isinglass, *Rita ritioides*, amongst others, which attains a large size and is found far up rivers, affording it in large quantities.

The **Scopelidæ** are represented by the *Harpodon nehereus*, Bomaloe, or Bombay-duck, which is common all along the coasts and ascends large rivers. They are excellent eating and, owing to their almost gelatinous character and to the absence of any large amount of muscle, they are easily dried.

Of the **Scombresocidæ** the only species are *Belone cancila* which is found throughout the rivers and tanks in which it breeds and is very good as food, and *Hemiramphus ectunctio* (viviparous) which seems as if it had a lower jaw only.

Amongst the **Cyprinodontidæ** are two species of *Haplochilus*, small and found mostly in large rivers and near the sea level.

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* See page 18.

The **Cyprinidæ** are destitute of teeth in the jaws or palate and have a single fin on the back. Of these the Loaches, or **Cobitinidæ**, extend throughout in pieces of standing water and in rivers and up to several thousand feet above the sea. They are excellent as food for the larger fish. It is remarkable that the single genus which is found high up in the hill ranges, *Nemacheilus*, is destitute of any spine under the eye which is possessed by every genus in the plains.

As far as is at present known the **Homalopterinæ**, or Stone-carps, are not represented in Burma; they reside under stones in streams along the bases of hills or at moderate elevations. The **Cyprininæ** are generally distributed and are most important as food, but the *Catla* is not found south or east of the Irrawaddy and does not even ascend the Pegu. Amongst these are non-migratory hill-carps, as *Discognathus lamta*, which is found in elevated regions throughout the year, and migratory hill-carps which breed on the hills but mostly descend to the rivers of the plains where they reside during the cool months of the year when the hill streams are at their smallest size, re-ascending to the base of the hills during the hot months. In the carps of the plains there is a large and varied number of forms, some of which are migratory merely for breeding purposes: as a rule the larger carps migrate but the smaller do not.

The **Clupeidæ**, or Herrings, abound, some being marine and visiting fresh-waters to breed and a few entirely residing there. They are perhaps the most important of Indian fishes not only as food for man but also as being an inducement to other and larger fish to migrate to the places which they frequent. Several marine forms have been reported as poisonous and Burmans will not eat the flesh of the Hilsa, *Clupea palasah*, if they are sick or are suffering or have lately suffered from skin disease as it is rich and will, they say, aggravate the malady if present or cause its return if they have only recently recovered from it. The genus *Engraulis* is most prolific in fish and these are very extensively consumed.

Of the **Notopteridæ**, *Notopterus kapirat* alone is found throughout the fresh-waters, and is much esteemed as food, and of the **Symbranchidæ** only the curious *Amphipnous cuchia* which lies in the grass and hurries into the water when alarmed.

The only member of the Lophobranchii is *Hippocampus trimaculatus*, a marine species of which the eggs are deposited in a sack or nest near the tail of the male and are thus carried about till hatched.

In the order Plectognathi *Xenopteris naritus*, a large, yellow, fresh-water species is eaten by Burmans, but the **Tetrodontidæ** of which there are three species, are not.

The Chondropterygians are found off the coast and both sharks and saw-fish have been caught within tidal influence inland but they are not used though their livers afford fish oil.

A DESCRIPTIVE LIST OF THE FISHES OF BRITISH BURMA.

THE following list has no pretence to exhaustiveness even as regards fresh-water and sub-marine fishes, and the coasts have been so little examined that, doubtless, the existence in Burmese waters of many of those inhabitants of the sea which in part are to be found there has not been recorded. As far as I am aware no fish which has been found and described has been omitted.

Sub-class.—TELEOSTEI.

Order.—ACANTHOPTERYGII.

Family.—**Percidæ.**

(*Perches.*)

Preopercle not articulated with the orbit. Neither molars nor cutting teeth. Vertical fins generally scaleless. Lateral line (except in some of the *Ambassis*) present and uninterrupted. Found in fresh and in salt-water.

1. *Lates calcarifer*, Günther.—(Ka-ka-dek, *Burm.*).

Marine predatory perch growing to two feet in length: ascends all large rivers. It salts well and from it some of the best 'tamarind fish' are prepared. Colours:—grey with a dash of green along the back and silvery on the abdomen; during the monsoon it has a tinge of purple: the young are usually darker than the adults. B. vii., D. 7-8 | $\frac{1}{11\text{-}12}$, P. 17, V. 1/5, A. $\frac{3}{8\text{-}9}$, C. 17.

2. *Serranus tumilabris*, Cuv. et Val.

Marine. Colours:—greyish-olive, darkest along the back; body and head covered with irregularly sized pearly white spots; a black line on the maxilla; fins dark grey, externally nearly black; margins of pectoral, ventral, soft dorsal and caudal with a very narrow white border; whole of dorsal fin white-spotted. Colours vary much with age. B. vii., D. $\frac{11}{18}$, P. 17, V. 1/5, A. $\frac{3}{8}$, C. 19.

3. *Ambassis nama*, Cuv. et Val.

Fresh-water, attaining three or four inches in length: scales, minute, scarcely visible on the head. Colours:—yellowish-olive, covered all over with minute black dots which on the shoulder are collected into an oblong patch having its longest diameter vertical; summit of the head and top of the eyes black; fins orange, the upper half of the first dorsal deep black; a dark upper edge to the second dorsal; caudal dark with a light outer margin and with a

black mark over the base of the spines. Lateral line indistinct, short or absent. Found throughout Burma. B. vi., D. 7 | $_{13\text{-}17}^{1}$, P. 13, V. 1/5, A. $_{14\text{-}17}^{3}$, C. 17.

4. *A. ranga*, Cuv. et Val.—(Nga-tan-rwek, *Burm.*).

Fresh-water. A few inches in length. This fish is subject to great variations, in accordance with age, in the spines of the dorsal fin, and in Burmese specimens the second small spine is comparatively shorter than in those of India. Colours:—olive, having a dark mark composed of spots on the shoulder, the remains of a band present in the young. The margins of the vertical fins are usually somewhat dark. In the young, termed by Buchanan *A. lala*, the fish is of a bright yellow or orange colour, with four or five dark vertical bands which are formed of fine black dots; the first dorsal is nearly black, the second and the anal, as well as occasionally the ventral have deep black edges. B. vi., D. 7 | $_{13\text{-}15}^{1}$, P. 11, V. 1/5, A. $_{14\text{-}16}^{3}$, C. 17.

5. *A. baculis*, Cuv. et Val.—(Nga-tseng-tsat, *Burm.*).

Fresh-water. Grows to a few inches in length. Scales minute. Differs from the preceding in having, amongst other differences, no canine or enlarged teeth in its jaws. Colours:—yellowish-olive above; a golden spot on the occiput; black along the top of the first dorsal fin; second dorsal and anal darkest externally; front of each anal ray blackish; caudal dark along its base and with blackish tip to each lobe. B. vi., D. 7 | $_{13\text{-}15}^{1}$, P. 12, V. 1/5, A. $_{13}^{3}$, C. 17.

6. *A. nalua*, Cuv. et Val.—(Nga-bya, *Burm.*).

Fresh and brackish waters. Colours:—silvery with a burnished lateral band; interspinous membrane dark between the second and third dorsal spines; a dark longitudinal band along either caudal lobe. Attains a length of seven inches. B. vi., D. 7 | $_{10\text{-}11}^{1}$, P. 15, V. 1/5, A. $_{9\text{-}10}^{3}$, C. 15.

7. *A. gymnocephalus*, Bleeker.

Marine, but sometimes ascending estuaries and rivers. Colours:—silvery with a bright longitudinal lateral band; some brown spots on the upper third of the body in its front half; blackish between the second and third dorsal spines, and a black edge to the caudal. Grows to at least four inches. B. vi., D. 7 | $_{9\text{-}10}^{1}$, P. 15, V. 1/5, A. $_{9\text{-}10}^{3}$, C. 17.

8. *Therapon jarbua*, Forsk.—(Nga-tsa-ba-tsa, *Arakan.*)

Though almost strictly marine it is occasionally found in brackish water within tidal influence and having entered during very high tides or during the monsoon its return may be cut off and it then lives in brackish or even fresh pools till next season. The young are found in rice fields near the coast or brackish

tidal creeks whence the Arakanese name "rice-plant-eating fish". Colours:—back bluish-grey becoming white on the abdomen with a tinge of gold on the cheeks and snout; three longitudinal reddish-brown bands, having a slight convexity downwards, pass along the body, the upper from in front of the dorsal spines to the eighth or ninth, the second from the occiput to the end of the soft dorsal having reached the lateral line in its concave course, the third from the back of the head to the lower opercular spine and continued in a curved direction to the centre of the caudal fin; sometimes a fourth band is present along the abdomen; ventral and anal with a yellow tinge along their centres; dorsal interspinous membrane milk white with a black mark in its upper two-thirds between the third and sixth spines; a second commences at the eighth spine and is continued along the whole course of the soft dorsal; upper edge of three first dorsal rays tipped with black; caudal with two oblique bands across each lobe; eye yellowish-red. Grows to thirteen inches. B. vi., D. $\frac{10\text{-}12}{9\text{-}10}$, P. 13, V. 1/5, A. $\frac{3}{8\text{-}9}$, C. 17.

9. *Datnioides polota*, Bleeker.—(Nga-kya, *Burm.*).

Found in estuaries and brackish water within tidal influence, and frequently ascends into fresh-water and has been captured between Henzada and Thayetmyo. Attains a length of at least one foot. Colours:—brownish glossed with copper, with six or seven narrow brown vertical bands on the body and similar ones radiating from the orbit. B. vi., D. $\frac{13\text{-}14}{13\text{-}14}$, P. 19, V. 1/5, A. $\frac{3}{8\text{-}9}$, C. 17.

10. *Gerres filamentosus*, Cuv. et Val.—(Nga-tsan-hla, *Burm.* Nga-wek-tsat, *Arakan.*).

Marine; not uncommon on the sea coast and sometimes ascending into brackish or fresh-water as far as tidal influence extends. Highest dorsal spine elongated, sometimes reaching the caudal fin. Colours:—silvery in the adult, with rows of short, oblong horizontal bluish spots along the upper half of the body, on the scales being rubbed off these are found to be continuous forming uninterrupted lines; a blackish spot anteriorly on the base of each dorsal spine and ray, just above the scaly sheath, and usually a dark edge to the soft dorsal; caudal greyish externally; other fins yellow with numerous fine dots on the fin membrane. The young have vertical bands, the alternate ones being the shorter. Rarely exceeds four inches in length in Burma. B. vi., D. $\frac{9}{10}$, P. 15, V. 1/5, A. $\frac{3}{7}$, C. 17.

11. *G. lucidus*, Cuv. et Val.

Marine. Visits the coasts in large numbers. Highest dorsal spine two-fifths as high as the body. Colours:—silvery, with an indistinct vertical dark band over the nape, a second from below the dorsal spines, and two more below the soft portion of the dorsal

fin; snout black; fins canary-yellow; the upper half of the membrane between the second and fifth dorsal spines deep black (in life), the rest of the fin dark-edged with a black margin; a row of dark spots along the dorsal spines and rays at half their height; caudal grey-edged, the inferior caudal lobe with a very narrow white lower edge and a white tip. B. vi., D. $\frac{9}{10}$, P. 15, V. 1/5, A. $\frac{3}{7}$, C. 17.

Family.—**Squamipinnes.**

(*Scaly-finned fishes.*)

Preopercle not articulated with the orbit. Body mostly elevated and compressed. Neither molars nor cutting teeth; mouth small, mostly light-coloured. As a rule marine, though some are found in rivers and estuaries; rarely captured above tidal reach.

12. *Chætodon pictus*, Cuv. et Val.—(Nga-gyeng-kyouk, *Arakan.*).

Marine: attains a length of ten inches. Colours:—snout with a black band; a dark ocular band descends through the eye over the interopercle to the chest; numerous fine dark lines downwards and forwards from the first half of the dorsal fin to the middle of the body, and on the posterior half of the body there are others having a direction downwards and backwards; dorsal and anal fins dark having a black margin and a light external edge, the dark line is continued over the posterior third of the body; there is another dark line over the free portion of the tail and a dark semi-lunar mark on the caudal fin. B. vi., D. $\frac{13}{23}$, P. 15, V. 1/5, A. $\frac{3}{20\text{-}22}$, C. 17.

13. *Ch. melanotus*, Bl. Schn.—(Nga-hpa-khai, *Burm.*).

Marine: grows to five inches. Colours:—yellowish, having a narrow black ocular band descending from in front of the dorsal fin through the middle of the eye over the preopercle, interopercle, and on to the chest; the upper fourth of the body stained with black and black lines along each row of scales; a black band over the free portion of the tail, but interrupted in the middle; fins yellow; a narrow black intermarginal band along the soft portions of the dorsal and anal fins with a white outer edge; a yellow band with a narrow black external edge down the centre of the caudal, the last third of which fin is grey; a short black band at the base of the first four anal rays. B. vi., D. $\frac{13}{19}$, P. 15, V. 1/5, A. $\frac{3}{18}$, C. 17.

14. *Scatophagus argus*, Cuv. et Val.

Marine, entering back-waters and rivers. Is a foul feeder near inhabited localities. Colours:—purplish becoming white on the abdomen; large round blackish or greenish spots on the body, most numerous along the back and varying in size and tints;

first dorsal brownish-blue, having a few minute spots; second dorsal yellowish, with slight brown markings between the rays; in the *very young* a bony ridge ending in a spine passes from the eye to above the opercle and on to the shoulder. It attains a foot in length. B. vi., D. 10 | $_{16\text{-}17}^{1}$, P. 20, V. 1/5, A. $_{14\text{-}16}^{4}$, C. 16.

15. *Toxotes microlepis*, Blyth.—(Nga-kya-ma, *Burm.*).

Brackish water; found within and above tidal influence. Colours:—golden with two to four large black oblong blotches or stripes along the sides, most being above the lateral line; dorsal blotched with black and having dark edges; anal dark; caudal yellow. B. vii., D. $_{13}^{5}$, P. 12, V. 1/5, A. $_{17}^{3}$, C. 19.

16. *T. chatareus*, Buch. Ham.

Rivers and estuaries. Colours:—silvery shot with gold, dorsal profile greenish-brown; six or seven oblong spots between the eye and the end of the base of the dorsal fin; some black blotches on the soft dorsal; lower edge of anal black. In the *young* the blotches are larger and darker, the ventral is black and there is a black band along the base of the caudal. Attains a foot in length. B. vii., D. $_{12}^{(4)\text{-}5}$, P. 13, V. 1/5, A. $_{16\text{-}17}^{3}$, C. 17.

17. *T. jaculator*, Cuv. et Val.

Marine. Colours:—brownish shot with golden; four triangular black blotches pass downwards from the back to the lateral line, most developed in the young; fins dark. B. vii., D. $_{11\text{-}12}^{4}$, P. 15, V. 1/5, A. $_{15\text{-}17}^{3}$, C. 17.

Family.—Nandidæ.

Preopercle not articulated with the orbit. Teeth feeble but dentition more or less complete. Lateral line interrupted or absent. Body oblong, compressed, covered with scales. Dorsal fins united, the spiny portion more developed than the soft.

18. *Badis buchanani*, Bleeker.—(Peng-lay-nga-bye-ma, *Burm.*).

Found in fresh-water, attaining three and a half inches in length. Colours:—subject to great variation; the Burmese specimens have six vertical bands, each being formed by four transverse black blotches, one above the other; a large one is situated on the shoulder and another on the side of the free portion of the tail; all the vertical fins have a narrow white edge. Bones of the head not serrated. B. vi., D. $_{7}^{16}\,_{10}^{18}$, P. 12, V. 1/5, A. $_{6\text{-}8}^{3}$, C. 16.

19. *Nandus marmoratus*, Cuv. et Val.

Bones of the head serrated. Fresh and brackish waters, attaining at least seven inches in length. It is exceedingly tenacious of life. Common in ditches and in inundated fields where it preys on small *Cyprinidæ*. Colours:—greenish-brown with brassy reflections, vertically marbled with three broad patchy bands, and

a fourth crosses the free portion of the tail, or occasionally there exists a black blotch there; some narrow bands radiate from the eye; across the soft portion of the dorsal, anal and caudal fins are narrow bands of spots. B. vi., D. $\frac{12-14}{11-13}$, P. 16, V. 1/5, A. $\frac{3}{7-9}$, C. 15.

20. *Pristolepis nandioides*, Bleeker.

Bones of the head serrated. Fresh-water. Grows to eight inches. Colours :—dull-greenish, having a deep black spot in the axilla and over the upper part of the base of the pectoral fin, which otherwise is yellow; other fins slate-coloured; the immature is banded. B. vi., D. | $\frac{12-13}{14-16}$, P. 15, V. 1/5, A. $\frac{3}{8}$, C. 14.

Family.—**Sparidæ.**

(*Band-fish.*)

Preopercle not articulated with the orbit. Either rows of cutting or conical teeth in the front of the jaws or a lateral row of molars or both conjoined. Single dorsal fin formed by a spinous and soft portion, their bases being of nearly equal extent; anals with three spines. Scales cycloid or minutely ctenoid. Marine, some entering fresh-water.

21. *Crenidens indicus*, Day.—(Nga-theng-koot-hpyoo, *Burm.*).

A marine fish attaining a length of one foot. Colours :—greyish-silvery, the scales on the head and anterior portion of the body with black edges; dark lines along the rows on the body; dorsal and anal fins black except the last anal ray which is white; pectoral yellow with its base orange, and a black spot in the axilla; outer two-thirds of ventral black, the rest bluish-white; caudal grey with a black edge. B. v., D. $\frac{10-12}{11-16}$, P. 15, V. 1/5, A. $\frac{3}{10-11}$, C. 17.

22. *C. forskälii*, Cuv. et Val.

Marine. Colours :—silvery, the vertical fin being rather darker than the body. B. v., D. $\frac{11}{11}$, P. 15, V. 1/5, A. $\frac{3}{9-11}$, C. 17.

23. *Chrysophrys berda*, Rupp.—(Nga-wa, *Arakan*).

Marine. Colours :—dark grey, the scales with dark edges; the fins black or edged with black: the variety *calamara*, is known in Madras as "black rock cod". B. vi., D. $\frac{11-12}{12}$, P. 15, V. 1/5, A. $\frac{3}{8-10}$, C. 17.

Family.—**Polynemidæ.**

Body oblong, somewhat compressed: mouth on the lower side of a prominent snout: two dorsal fins; several free and articulated appendages below the pectoral: scales finely ctenoid or cycloid and more or less covering the vertical fins.

24. *Polynemus paradiseus*, Linn.—Mangoe-fish. (Nga-poon-na, *Burm.*).

Marine found all along the coast; it enters rivers for spawning purposes, and generally during the south-west monsoon and the cold months: attains nine inches in length. Colours:—generally golden with a shade of grey across the back and the dorsal fins also stained greyish with a slight tinge of the same shade, as are also the caudal, the pectoral and the upper pectoral appendages. B. vii., D. 7 | $\frac{1}{15\text{-}16}$, P. 15+vii., V. 1/5, A. $\frac{2}{12}$, C. 19.

25. *P. indicus*, Shaw.—(Ka-koo-yan, [Kwai-yeng *Tavoy*], (*Burm.*).

Marine; it attains about four feet in length but is rarely above 20 lbs. in weight; the largest specimens appear to be captured in the embouchures of large rivers. Colours:—back purplish-black; abdomen silvery-white dashed with gold; first and second dorsals and anal stained with black, as is the lower half of the opercle; caudal with many black points. B. vii., D. 8 | $\frac{1}{13\text{-}14}$, P. 15+v., V. 1/5, A. $\frac{2\text{-}3}{11\text{-}12}$, C. 17.

26. *P. plebeius*, Bleeker.

Common on the coast and in estuaries. Colours:—golden, having a greyish tinge along the back and darkish lines along each row of scales; anal fin dashed with grey; ventral white, externally greyish; both dorsals, the caudal and the pectoral grey-edged. B. vii., D. 8 | $\frac{1}{13}$, P. 17+v., V. 1/5, A. $\frac{2\text{-}3}{11}$, C. 17.

27. *P. tetradactylus*, Shaw.—(Nga-ta-yaw, *Burm.*).

A very large marine fish which ascends higher up rivers than others of the genus. Found on the coast of Tenasserim and probably elsewhere. Colours:—silvery-green, becoming yellowish-white on the sides and abdomen; dorsal and caudal greyish with minute black points and nearly black at the edges; ventral and anal pale orange in their outer halves; pectoral filaments white; a dark mark on the upper portion of the opercle. B. vii., D. 8 | $\frac{1}{13\text{-}15}$, P. 17+iv., V. 1/5, A. $\frac{2\text{-}3}{15\text{-}17}$, C. 17.

Family.—**Sciænœidæ.**

(*Umbers.*)

Body somewhat compressed and rather elongate. Second dorsal fin much more developed than the first or the anal: no pectoral filaments: vent remote from the tail, and posterior to the ventral fins. Scales ctenoid or cycloid, covering the head and snout.

28. *Sciæna miles*, Lacép.—(Ka-loung-boung, *Burm.*).

Marine: attains a length of two feet. Colours:—greyish, darkened with green along the back, becoming white on the sides

and abdomen; sometimes a small brown spot in front of each dorsal ray; in some specimens the outer edges of the fins are dark, except the ventral which is white. B. vii., D. 9-10 | $\frac{1}{28\text{-}30}$, P. 17, V. 1/5, A. $\frac{3}{7}$, C. 17.

29. *Sc. coitor*, Buch. Ham.—(Nga-poot-theng, *Burm.*).

Found throughout the larger rivers, descending to the sea at certain seasons. Attains a foot in length. Colours:—silvery shot with gold and purple; upper half of first dorsal blackish; soft dorsal, caudal and anal dark externally whilst the last fin has a darkish basal band. B. vii., D. 10 | $\frac{1\text{-}2}{26\text{-}29}$, P. 17, V. 1/5, A. $\frac{3}{7}$, C. 17.

30. *Sc. albida*, Cuv. et Val.

Found on the coast; attains three feet in length. Colours:—silvery, with a light streak along each row of scales; the first dorsal in the young with a black interspinous membrane, but in the adult with a black outer edge only; second dorsal stained grey at the upper third; a dark-bluish mark on the opercles, most distinct in the young; ventral anal and caudal yellowish. B. vii., D. 9-10 | $\frac{1}{24\text{-}25}$, P. 18, V. 1/5, A. $\frac{3}{7}$, C. 17.

31. *Sc. diacanthus*, Günther.

A large fish attaining at least five feet in length; it ascends tidal rivers and estuaries. Colours:—brownish-grey shot with silver along the back which below the lateral line gradually fades to dull silvery-grey; head of the same colour glossed with purple; fins yellowish with black dots; eyes golden. In the *immature*, as up to a foot and half in length or even more, the fins are greyish with dark edges and the dorsal has two rows of dark spots; the caudal has black spots and black edge. In still younger specimens the back and upper half of the body have many black spots, and the young are, as a rule, vertically banded. B. vii., D. 10 | $\frac{1}{23\text{-}24}$, P. 18-19, V. 1/5, A. $\frac{3}{7}$, C. 17.

32. *Sciænoides pama*, Buch. Ham.—(Nga-pyek, *Burm.*).

A large marine fish, attaining five feet in length, which ascends estuaries and rivers as far as the tide extends. In Calcutta it is called '*Whiting*'. Colours:—light-brownish along the back becoming white beneath; head shot with gold and purple; fins yellowish; the upper half of the dorsal and last half of the caudal grey. B. vii., D. 10 | $\frac{1}{40\text{-}43}$, P. 17, V. 1/5, A. $\frac{3}{7}$, C. 17.

33. *Sc. biauritus*, Cantor.

Coast and estuaries. According to Cantor it furnishes a large quantity of isinglass which the Chinese esteem as being of the best quality. Colours:—light-brown superiorly; tinged with gold on the abdomen; head shot with purple. B. vii., D. 9 | $\frac{1}{27\text{-}33}$, P. 19, V. 1/5, A. $\frac{3}{7}$, C. 17.

Family.—**Trichiuridæ.**

(Hair-tails.)

Body band-like and compressed. Cleft of mouth deep: teeth in jaws and palate several, and strong and conical. Dorsal and anal fins many-rayed: ventrals, when present, in the form of a pair of scales: caudal absent or forked.

34. *Trichiurus haumela*, Forsk.—(Nga-ta-khwon-kha, *Burm.*).

Common on the coast. It is exceedingly voracious devouring its own species as well as other kinds of fish and crustacea. Not electrical but at certain seasons gives out a vivid phosphorescent light. Colours:—greyish along the back, becoming silvery on the sides and beneath; a dark mark along the edge of the preorbital; fins of a pale yellow; the upper half of the dorsal dark owing to numerous fine black dots. B. vii., D. 127-133, P. 11.

Family.—**Carangidæ.**

(*Horse Mackerel.*)

Preopercle not articulated with the orbit. Body oblong, elevated, or sub-cylindrical and compressed. Teeth, when present, villiform or conical. Spinous portion of the dorsal fin sometimes rudimentary: posterior rays of the dorsal and anal may consist of detached finlets: ventrals, when present, thoracic.

35. *Chorinemus lysan*, Cuv. et Val.—(Nga-pyek, *Burm.*).

Marine: attains two and a half feet in length. Colours:—six to eight large round grey spots, like finger marks, on the side, the lateral line sometimes going through the two first while the others are all above it; summit of soft dorsal black. B. viii., D. 7 | $\frac{1}{19-20}$, P. 19, V. 1/5, A. 2 | $\frac{1}{17-18}$, C. 19.

36. *Psettus argenteus*, Linn.—(Nga-poo-zwon, *Arakan*).

Marine: attains seven inches in length. Colours:—silvery with purplish reflections, especially about the anal fin; back yellowish-green, rapidly assuming a leaden hue after death; one rather wide black band passes directly downwards from the nape to the centre of the eye; a second from opposite the three first dorsal spines goes as far as the opercle; some of the dorsal is stained with black, as is also the anterior portion of the anal though to a less extent; pectoral and ventral colourless; caudal yellow with a narrow black posterior edge. B. vi., D. $\frac{8}{28-30}$, P. 17, V. $\frac{1}{2-3}$, A. $\frac{3}{28-30}$, C. 17.

37. *Equula edentula*, Forsk.

Marine; ascends rivers far above tidal reach but, it would seem, only when young. Attains ten inches or more in length. Colours:—silvery-greyish along the lateral line; fine vertical lines

from the back down the sides; the soft dorsal stained with grey on its upper edge; base of pectoral stained grey. B. v., D. $\frac{8}{15\text{-}16}$, P. 20, V. 1/5, A. $\frac{3}{14}$, C. 17.

38. *E. blochii*, Cuv. et Val.

Seas and coast. Colours:—silvery with a dark brown blotch over the nape and a black mark in the upper half of the spinous dorsal fin from the third to the sixth spines; vertical zig-zag yellow lines on the back and sides which fade soon after death; base of pectoral posteriorly dark-coloured. B. v., D. $\frac{8}{16}$, P. 18, V. 1/5, A. $\frac{3}{14}$, C. 17.

39. *E. ruconius*, Buch. Ham.—(Peng-lay-nga-tseng-tsat; Peng-lay-nga-pyo-thek, *Burm.*).

Marine: frequently captured in estuaries and tidal rivers. Colours:—back bluish-silvery; abdomen silvery-white; a well-marked black streak from the anterior edge of the eye to the throat, joining that of the opposite side; a dark spot on the upper part of the opercle; back of the base of the pectoral black; vertical lines of black marks having bronze reflections descend the upper third of the body and are often subdivided into spots; spinous dorsal tipped with black. B. v., D. $\frac{8}{16}$, P. 18, V. 1/5, A. $\frac{3}{14}$, C. 17.

Family.—**Stromateidæ.**

(*Pomfrets.*)

Preopercle not articulated with the orbit. Body oblong and compressed. Barbed teeth extend into the œsophagus. One long dorsal fin without any distinct spinous portion.

40. *Stromateus sinensis*, Bl. Schn.—The White Pomfret. (Nga-moo, *Burm.*).

Coasts and estuaries. Colours:—upper surface of head and body as far as the lateral line of a deep neutral tint, the rest of the body with a mixture of brownish-grey, having metallic reflections, becoming lighter and silvery towards the abdomen; dotted all over with brown, the larger spots having a silvery point in their centre; fins silvery-grey, marginal half blackish; cavity of the mouth and tongue pale bluish-grey with brown dots, silvery in the centre; iris reddish-silver, or copper-coloured, minutely dotted with brown. The *young* are grey, the head covered with irregularly star-shaped spots and the fins nearly black especially at their edges. B. vi., D. 43-50, P. 25, A. 39-42, C. 19.

41. *S. cinereus*, Bleek.—The Silver Pomfret (immature); the Grey Pomfret (adult).

Marine: attains a foot in length. Colours:—upper surface of head and back as low as the lateral line of a greyish neutral tint

with purplish reflections; sides of head and body silvery-grey, fading to white on the abdomen, and everywhere covered with minute black dots; a dark spot on the upper portion of the opercle; dorsal and anal grey, minutely dotted with black, the outer half being the darker; caudal and pectoral yellowish-white, also minutely dotted with black, the outer half being the darker; iris silvery. The *young* are much darker, the vertical fins being nearly black. B. vii., D. 5-9 | $\frac{1}{38-43}$, P. 27, A. 5-6 | $\frac{1}{32-41}$, C. 19.

42. *S. niger*, Bloch.—The Black Pomfret. (Nga-pa-moung, *Burm.*).

Appears in shoals off the coast, disappearing as suddenly as it arrives; grows to two feet in length. Colours:—deep brown or greyish-brown with blue reflections; cheeks, opercle and abdomen pale-neutral or brownish-neutral; dorsal and anal greyish-brown, stained black towards their margins; pectoral and caudal brownish, edged with black; iris brownish-blue, grey in the *young*; dorsal and anal fins black; tail yellow with three brown cross-bands. B. vii., D. $\frac{5}{42-44}$, P. 22, A. $\frac{3}{35-39}$, C. 19.

Family.—**Scombridæ.**

(*Mackerels.*)

Preopercle not articulated with the orbit. Body oblong or slightly elongated and compressed. Two dorsal fins, the first being sometimes modified into free spines or an adhesive disk whilst the posterior dorsal and anal rays may be in the form of finlets. Scales, if present, small.

43. *Scomber microlepidotus*, Rupp.—(Nga-goung-gyee, *Arakan*).

Marine: rarely exceeds ten inches. Colours:—back greenish; sides and abdomen irridescent; a row of sixteen spots along the summit of the back, close to the base of the dorsal fin; summit of head spotted; sides shot with bluish-purple; dorsal fins yellowish tipped with black; caudal bright yellow, stained with black at its extremity; pectoral bright yellow, with a dark mark on the body below it which shows through the fin; ventral and anal finely dotted with black, which fades soon after death, when all the shot colours also disappear and the specimen becomes of a dull green with the abdomen of a lighter colour; posterior edge of caudal sometimes blackish with a white outer margin. In large specimens the colours differ; there are from five to eight dark longitudinal bands along the back and upper half of the body, the superior of which is occasionally broken up into spots. There are usually two golden bands below the lateral line and one along its course. B. vi., D. 8-10 | $\frac{1}{1}$ + v.-vi., P. 21, V. 1/5, A. $\frac{1}{1}$ + v.-vi., C. 24.

44. *Cybium guttatum*, Cuv. et Val.—(Kwon-shat, *Burm.*).

Marine: grows to six feet. Colours:—bluish above, silvery beneath; back and sides with three rows of rather horizontally-oval spots which become more apparent after death; the membrane between the first and eighth spines black, the rest pure white edged with black. In the *young* the first dorsal is occasionally almost wholly black. B. vii., D. 16-17 | $\frac{4\text{-}5}{14\text{-}15}$+viii.-x., P. 21, V. 1/5, A. $\frac{3}{17\text{-}19}$+vii.-ix., C. 26.

45. *C. lineolatum*, Cuv. et Val.

Marine: Colours:—bluish above, silvery on the sides and beneath; several rows of elongated black blotches on the body, three rows of them, like interrupted lines, being below the lateral line. B. vii., D. 16 | $\frac{4}{12}$+ix., P. 21, V. 1/5, A. $\frac{5}{14}$+x., C. 15.

Family.—**Trachinidæ.**

(*Weavers.*)

Preopercle not articulated with the orbit. Body low and more or less elongated. One or two dorsal fins.

46. *Sillago domina*, Cuv. et Val.

Ascends rivers: attains ten inches in length. Colours:—greenish-yellow shot with purple. B. vi., D. 9 | $\frac{1}{25\text{-}27}$, P. 24, V. 1/5, A. $\frac{1}{26\text{-}27}$, C. 19.

47. *S. sihama*, Forsk.—(Nga-pa-lwe, *Burm.*).

Marine: ascends tidal rivers; attains one foot in length. It is known as '*Whiting*' in Madras. Colours:—olive-green along the back, becoming light on the abdomen, the whole having a brilliant purple reflection; a silvery longitudinal band; minute black points on the dorsal and anal fins. B. vi., D. 10-11 | $\frac{1}{20\text{-}23}$, P. 20, V. 1/5, A. $\frac{1}{22\text{-}23}$, C. 19.

Family.—**Batrachidæ.**

(*Frog-fishes.*)

Preopercle not articulated with the orbit. Body low and more or less elongated. First dorsal consisting of a few free spines. Carnivorous.

48. *Batrachus gangene*, Buch. Ham.

Estuaries of the large rivers in mud and dirty water: attains at least a foot in length. Colours:—light reddish-brown marbled with darker. B. vi., D. 3 | 20-22, P. 21, V. 1/2, A. 16-18, C. 15.

Family.—**Pediculati.**

(*Walking-fishes.*)

Preopercle not articulated with the orbit. The spinous dorsal, when present, composed of a few isolated spines which may be

modified into tentacles: carpal bones forming a sort of arm for the pectoral fins: ventrals, when present, singular, having four or five rays.

49. *Antennarius hispidus*, Bl. Schn.

Skin rough. Colours:—yellow with brown spots and streaks some radiating from the eye, others descending from the back and many down the sides; small lines and blotches or spots on the fins. B. vi., D. 3 | 12, P. 10, V. 5, A. 7, C. 9. Marine.

50. *A. nummifer*, Cuv.

Skin rough. Colours:—greyish-brown having a purplish tinge; a black ocellus with a yellow edge behind and above the end of the base of the pectoral fin; fins yellow, the dorsal with a black yellow-edged ocellus below its seventh and eighth rays, its end with black bands and spots, as have also the pectoral, ventral, caudal and anal fins; tongue whitish with green marks; eyes golden. Marine: grows to at least six and a half inches. B. vi., D. 3 | 12, P. 10-13, V. 5, A. 7, C. 9.

51. *A. marmoratus*, Bl. Schn.

Skin smooth but with fleshy excrescences. Colours:—vary, generally reddish-yellow marbled with brown and brown spots, mostly edged with white, radiating from the eye; round white spots on sides and abdomen; in some the fins are banded; iris golden with radiating brown lines. The variations are so considerable that two specimens are rarely found possessing complete similarity. Marine. B. vi., D. 3 | 12, P. 9-10, V. 5, A. 7, C. 9.

52. *Halieutæa stellata*, Cuv. et Val.

Colours:—pinkish. Superiorly and laterally covered with spines. B. vi., D. 4, P. 13, V. 1/5, A. 4, C. 9. Marine: attains eight inches.

Family.—Cottidæ.

(*Flat heads or Crocodile fishes.*)

Preopercle articulated with the orbit. Body more or less elongated: some of the bones of the head usually armed. Wounds from members of this family are dreaded on account of the violent irritation which they occasion.

53. *Platycephalus insidiator*, Forsk.—(Nga-bhoo-reng-gyee, *Arakan*).

Ridges on head slightly spined. Colours:—brownish above becoming dirty white beneath; fins spotted; caudal yellow with a deep black band, having a white border obliquely crossing its upper lobe; a second along its lower lobe. Marine: attains a foot and

a half in length. B. vii., D. 1 | 7 | 13, P. 17, V. 1/5, A. 13, C. 15.

54. *P. serratus*, Cuv. et Val.

Ridges on head serrated, not spinate. Colours :—reddish brown with six or eight irregular brown bands descending from the back to the white abdomen; fins grey with black points; on the top of the dorsal a black blotch; ventrals bluish above and whitish below. Marine (coast of Arakan): grows to seven inches in length. B. vii., D. 1 | 8 | 11-12, P. 19, V. 1/5, A. 11, C. 13.

55. *P. carbunculus*, Cuv. et Val.

Colours:—brownish, with numerous brown spots; three vertical bands on the body, one broad and through the anterior half of the first dorsal to the abdomen, the second through the middle of the second dorsal and the third over the free portion of the tail; opercle dark; posterior half of first dorsal black; second dorsal spotted; pectoral with several lines of spots and a dark mark near its base; caudal dark with one or two ill-defined vertical bands. Marine. B. vii., D. 1 | 8 | 11-12, P. 20, V. 1/5, A. 11-12, C. 13.

Family.—Gobiidæ.

(*Gobies.*)

Carnivorous fishes, living at the bottom in fresh and salt-waters.

Preopercle not articulated with the orbit: ventrals either united so as to form a disk or else placed close together: anal spines may be absent.

56. *Gobius viridipunctatus*, Cuv. et Val.

Colours :—olive, with a series of four or five large, badly defined, blotches along the sides; many scales with a light centre which in life is of an emerald green; dorsals dark at their bases, usually having light edges with a dark basal band; ventral, anal and caudal grey, the last with a light upper edge. Marine. Attains a length of at least five inches. B. v., D. 6 | $\frac{1}{10}$, P. 20, V. 1/5, A. $\frac{1}{8}$, C. 15.

57. *G. striatus*, Day.

Colours:—generally light fulvous with a bluish tinge along the sides, becoming dirty white beneath; some irregular bands pass from the back towards the middle of the body; some thin black lines proceed upwards on the abdomen opposite to the anal fin; cheeks glossed with silver; pectoral, ventral and anal whitish yellow; both dorsals diaphanous, with five or six rows of brown dots; caudal with eight or nine vertical rows of spots in its upper half or two-thirds. Back-waters and fresh-water. B. v., D. 6 | $\frac{1}{10}$, P. 15, A. 1/5, A. 10, C. 15.

58. *G. elegans*, Cuv. et Val.

Colours:—buff, with a tinge of olive, minutely dotted with brown, the upper half of the sides with three or four indistinct lines, each formed by a series of very short brown streaks, beneath which is a series of indistinct brown spots; a blackish spot at the posterior portion of the orbit, a second at the upper part of the root of the pectoral fin, and a third at the lower part of the root, spreading on to the gill membrane; near the lower part of the root of the pectoral is a faint trace of a fourth brown spot; the membranes of the fins are of a very pale bluish-green, minutely clouded with brown; those of the dorsals, particularly the second, with three or four series of indistinct blackish spots and a few similar on the caudal membrane; the rays of the anterior dorsal have two or three series of brown spots; iris pale greenish-silvery, minutely dotted with brown. It is a small marine or estuarine species. B. v., D. 6 | $\frac{1}{10}$, P. 18, V. 1/5, A. $\frac{1}{6}$, C. 18.

59. *G. giuris*, Ham. Buch.—(Ka-tha-bho, *Burm.*).

Colours:—vary with the locality and with the colour of the water; generally of a fawn colour with cloudy markings on the head; vertical fins spotted. In the form most common in the fresh-waters of Burma there is no distinct black blotch on the first dorsal spine but both the dorsal fins have from six to eight, or even more, rows of spots, and the caudal fin is closely banded in spots; in other forms the caudal is entirely or almost entirely destitute of spots but has dark edges, or has from four to eight distinct black bands; the dorsals have only three or four rows of spots and a deep black blotch on the first which extends on to the interspinous membrane. Found in almost all pieces of fresh-water and swarms in some rivers, especially the Pegu, Tsit-toung and Salween. B. iv., D. 6 | $\frac{1}{8\text{-}9}$, P. 20, V. 1/5, A. $\frac{1}{8\text{-}9}$, C. 17.

60. *G. koku*, Russel.—(*G. kokius*, Cuv. et Val.).

Is an entirely marine and estuarine form of the preceding or more probably a distinct species. Its snout is narrower at its base where it only equals its length; the last rays of the dorsal fin are short. It has four or five large blotches along the sides and above them, intermediately placed, usually three more; the fins are spotted in about three or four rows; there is no black blotch on the first dorsal spine; the caudal is spotted in rows. It rarely, if ever, exceeds a span in length.

61. *G. sadanundio*, Ham. Buch.

Colours:—olive, with very large deep-black white-edged blotches scattered over the body; first dorsal black with a white ring on its three last rays; second dorsal with two rows of black spots along its base and a third of white dots along its centre; ventral

black in the centre and having orange edges; anal dark olive margined with black; caudal with numerous fine black dots. Attains three inches in length. Found on the coast and for some little distance up large rivers. B. v., D. 6 | $\frac{1}{8}$, P. 19, V. 1/5, A. $\frac{1}{8}$, C. 15.

62. *G. nunus*, Ham. Buch.

Colours:—reddish-brown with seven black belts, the first through the eye, the second over the opercles and the other five down the body, the last being at the root of the caudal fin; these bands are extended on to the vertical fins. Fresh-water. B. v., D. 5 | $\frac{1}{9}$, P. 17, V. 1/5, A. 9, C. 15.

63. *Sicydium fasciatum*, Day.

Colours:—reddish-brown with about six darker vertical bands on the body wider than the ground colour; there are also some dark spots; its under surface is dirty yellowish-brown; fins nearly black with a light, nearly white, edge. Grows to two and a half inches. Found in fresh and brackish waters. B. iv., D. 6 | $\frac{1}{10}$, P. 17, V. 6, A. 11, C. 13.

64. *Apocryptes batoides*, Day.

Colours:—greyish along the back becoming whitish below; fins without marks. Resembles *A. bato* but has notched teeth. Coasts ascending rivers. Grows to ten inches. B. iv., D. 6 | 23, P. 21, V. 1/5, A. 23, C. 13.

65. *A. lanceolatus*, Bl. Schn.

Colours:—dull greenish superiorly with numerous fine brown spots and usually many dark bands from the back towards the abdomen; dorsals with several rows of fine spots; caudal barred in a few or many rows. Attains at least 8 inches in length. Marine. B. iv., D. 5 | 31-32, P. 21, V. 1/5, A. 29-30, C. 11.

66. *Periophthalmus koelreuteri*, Bl. Schn.—Mud-skipper. (Ngatseng [Pa-yit-pwee, *Tavoy*] *Burm.*).

Colours:—head sometimes with blue spots; body olive-brown with white or blue dots; first dorsal bluish with a dark edge having a white tip and occasionally white spots at its base; second dorsal generally with a black white edged longitudinal band in its upper half or upper third whilst its lower portion has white dots; pectoral and caudal often with brown dots. Marine; ascending estuaries and rivers. B. v., D. 10-15 | 12-13, P. 15, V. 1/5, A. 11-14, C. 11.

67. *P. schlosseri*, Bl. Schn.

Colours:—when alive brownish-banded, with emerald-green spots, most distinct on the head but in certain lights all over the body; first dorsal black, becoming bluish superiorly, edged with white, with a scarlet band along its centre and a white dot between each ray; second dorsal the same but the base lighter and

spotted; anal edged with white. In the *male* the first dorsal has a black band, becoming cobalt externally, with a scarlet edging. Coast and large rivers. Attains nine inches in length. Where found it is extensively used as live bait. B. v., D. 0-15 | $\frac{1}{12}$, P. 9, V. 1/5, A. $\frac{1}{12}$, C. 12.

68. *Boleophthalmus viridis*, Ham. Buch.

The fishes of this genus are mud-dwellers and if placed in an aquarium in deep water are rapidly drowned.

Colours:—greenish becoming white beneath; some black spots rather widely separated upon the head, body and dorsal fins; caudal with its upper two thirds having dark angular bands, its lower third white. Estuaries and coasts. B. v., D. 5-26, P. 21, V. 1 | 5, A. 26, C. 15.

69. *B. boddaerti*, Cuv. et Val.

Colours:—greenish-blue with seven or eight vertical black bands; body covered with opaque blue spots; first dorsal blue-spotted; three rows on the second, with four large series along its base; pectoral orange with a black edge, or dark with an orange margin; anal and caudal blackish; ventrals purplish. Burmese specimens have usually a black edge to the pectoral. It climbs up rocks and pieces of wood when it resides in shallow estuaries. Coasts and estuaries. B. 5, D. 5 | 24-25, P. 17, V. 1/5, A. 24, C. 13.

70. *B. pectinirostris*, Gmel.

Colours:—the body with small dark tubercles and verdigris spots; vertically placed blue spots on the first dorsal and six or seven transverse ones on the second where they sometimes form bands; some also on the caudal; other fins brownish. Coasts. B. v., D. 5 | 23-24, P. 18, V. 1/5, A. 23-24, C. 14.

71. *Eliotris macrodon*, Bleeker.

Colours:—brownish; second dorsal with several brown spots; a dark ocellus edged with light at the upper part of the base of the caudal. Coasts, estuaries and mouths of large rivers: attains at least four and a half inches in length. B. v., D. 6 | $\frac{1}{9}$, P. 17, V. 1/5, A. $\frac{1}{8}$, C. 13.

72. *E. porocephalus*, Cuv. et Val.

Colours:—deep blackish-brown marbled with darker; second dorsal with three or four rows of spots; a dark band along the anal; the body and second dorsal fin may have numerous light spots. Marine and estuarine. B. v., D. 6 | $\frac{1}{9\text{-}10}$, P. 15, V. 1/5, A. $\frac{1}{7}$, C. 15.

73. *E. fusca*, Bl. Schn.

Colours:—leaden-black, lighter on the abdomen which sometimes has a yellow tinge; horizontal bars on the dorsal, sometimes vertical bars on the caudal. Occasionally its upper surface is of a light stone colour. Markings and colours subject to great variation.

It conceals itself under stones and amongst weeds remaining motionless for hours; its movements are slow and it is fond of attaching itself vertically with its head downwards to the side of the vessel in which it may be confined. Coasts, but sometimes found hundreds of miles from the sea: attains eight inches in length. B. vi., D. 6 | $\frac{1}{8}$, P. 18, V. 1/5, A. $\frac{1}{8}$, C. 12.

74. *E. scintillans*, Blyth.

Colours:—brownish marbled with darker and the scales shot with light spots when in a certain position; both dorsals with about three rows of spots and a dark edge with a light margin; anal with a dark band in its outer half having a light edge; caudal dark with a white edge, sometimes it and the anal are spotted; a dark ocellus at the upper part of the base of the caudal. (May be the young of *E. porocephalus*). Coasts. B. v., D. 6 | $\frac{1}{8}$, P. 15, V. 1/5, A. $\frac{1}{7}$, C. 13.

75. *E. caperata*, Cant.

Colours:—leaden-brown; fins blackish, especially the first dorsal; a deep black blotch edged with scarlet at the base of the pectoral; the second dorsal, caudal and anal more or less spotted. Coasts. B. v., D. 6 | $\frac{1}{8}$, P. 21, V. 1/5, A. $\frac{1}{8}$, C. 15.

76. *Gobioides anguillaris*, Linn.—(Nga-pyan-nee, *Burm.*).

Colours:—pinkish; caudal darkest in its centre. Coasts. B. v., D. 6 | 45-47, P. 15, V. 1/5, A. 44-45, C. 13.

Tænioides hermannii, Lacép, is given by Day as a doubtful synonym (it is said to be destitute of a caudal fin).

77. *G. buchanani*, Day.

Colours:—brownish-olive superiorly, reddish inferiorly; pectoral and ventral yellow, with their outer halves black; vertical fins blackish. Coasts. B. v., D. 6 | 42, P. 19, V. 1/5, A. 36, C. 17.

78. *G. rubicundus*, Swainson.

Colours:—greenish-olive superiorly, becoming dull white below; vertical fins diaphanous; caudal black. Marine and estuarine. B. v., D. 6 | 35-39, P. 30, V. 1/5, A. 33-36, C. 15.

79. *Trypauchen vagina*, Cuv. et Val.

Colours:—white with a rosy tinge, much brighter at some seasons than at others; dorsal and anal with their outer edges grey; pectoral, ventral and caudal white or tinged with yellow. Marine. B. iv., D. 6 | 40-49, P. 15, V. 1/5, A. 40-46, C. 13.

Family.—Rhyncobdellidæ.

(*Spiny eels*).

Body eel-like: scales very small. Dorsal fin very long and the anterior portion composed of numerous free spines: no ventrals: no prominent anal papilla.

80. *Rhyncobdella aculeata*, Bloch.—(Nga-mywe-to, *Burm.*).

Colours:—brownish or greenish, marbled superiorly, becoming yellowish along the abdomen; a light band along the body just above the lateral line; a series of from three to nine large black ocelli, having a white or buff edge, along the base of the soft dorsal; caudal with from six to eight vertical brown bars, fins otherwise greyish; pectoral sometimes yellow. In some specimens from Maulmain the fish were covered with white spots, the fins were reddish and the dorsal barred. It is found in brackish waters within tidal influence throughout the deltas of the larger rivers. It conceals itself in the mud and is drowned if placed in water and unable to reach the surface. B. vi., D. 16-20|44-54, P. 23, A. 2/3|44-52, C. 15.

81. *Mastacemblus unicolor*, Cuv. et Val.

Vertical fins distinct from the caudal. Colours:—brownish superiorly becoming lighter beneath; three or four rows of oblong, rounded, or irregularly shaped yellow spots or blotches along the sides; vertical fins with a black, yellow-margined, outer edge. B. vi., D. 33-34 | 81-94, P. 27, A. 3/75-98, C. 25.

82. *M. zebrinus*, Blyth.—(Nga-mywe-do-wet-toung [Nga-yeng-bho, *Tavoy*] *Burm.*).

Vertical fins distinct from the caudal. Colours:—greenish along the back, becoming lighter on the sides and beneath, with bluish vertical bands, either edged on either side with a golden one or else the two alternating; dorsal and caudal fins banded in dots; anal with the body bands continued on to it, and having intermediate dark ones. Common throughout the fresh-waters of Burma, attaining a length of nine inches. B. vi., D. 28-29|50-52, P. 19, A. 3/51-56, C. 19.

83. *M. armatus*, Lacép.

Vertical fins confluent with the caudal. Colours:—usually rich brown, becoming lighter on the abdomen; in some a blackish band goes through the eye and is continued in an undulating course along the upper half of the side; above this band there are sometimes a row of black spots along the base of the soft dorsal, and there may be short black bands over the back, in the situation of the dorsal spines; pectoral usually spotted; dorsal and anal have usually bands or spots. Throughout the fresh and brackish waters, attaining a length of two feet or more. B. vi., D. 32-39 | 74-90, P. 23, A. 3/75-88.

Family.—**Mugillidæ.**

(*Mullets*).

Body more or less elongated and somewhat sub-cylindrical. Cleft of the mouth not wide, the corners bent angularly inwards:

dentition feeble; feed on soft organic substances or on very small animals. Gill opening wide. Two short dorsal fins, the anterior consisting of four stiff spines. In the marine forms the scales are cycloid, or feebly ctenoid; in the fresh-water forms they are strongly ctenoid. Fresh-waters and coasts.

84. *Mugil planiceps*, Cuv. et Val.

Eye with a broad adipose lid. Colours:—greenish-brown superiorly with a dark line along each row of scales. Seas, estuaries and tidal rivers. Attains a length of a foot and a half. B. vi., D. 4 | $\frac{1}{8}$, P. 17, V. 1/5, A. $\frac{3}{9}$, C. 17.

85. *M. subviridis*, Cuv. et Val.—(Nga-loon, *Burm.*).

Adipose eyelid well developed. Colours:—dull greenish superiorly, becoming lighter on the sides and beneath; outer edge of caudal dark. Marine; entering fresh-water. B. vi., D. 4 | $\frac{1}{8}$, P. 16, V. 1/5, A. $\frac{3}{9}$, C. 15.

86. *M. corsula*, Ham. Buch.—(Nga-tseng, *Burm.*).

Head rising higher than the back; eyes protuberant. Colours:—dull brown superiorly, becoming lighter along the abdomen; dorsal and caudal fins stained with grey; eyes golden. Estuaries and rivers extending far above tidal influence. They swim with their eyes just above the surface, looking like tadpoles; if disturbed, they dive with great rapidity. B. vi., D. 4 | $\frac{1}{7-8}$, P. 15, V. 1/5, A. $\frac{3}{9}$, C. 15.

87. *M. hamiltonii*, Day.

Scales ctenoid. Colours:—silvery, shot with gold, of a leaden colour along the upper half of the body. Fresh-water: attains a length of from four to five inches. B. vi., D. 4 | $\frac{1}{8}$, P. 13, V. 1/5, A. $\frac{3}{9}$, C. 15.

Family.—Ophiocephalidæ.

(*Snake-heads.*)

Dorsal and anal fins long and destitute of spines. Teeth in the jaws and on the palate. Long in shape with a large mouth. Covered with scales. Fresh-water. Carnivorous. Can exist for a long time out of water and travel some distance over the ground, especially when it is moist.

88. *Ophiocephalus marulius*, Ham. Buch.—Murrel. (Nga-yandaing, *Burm.*).

"Some of the Kareng regard these fish with a superstitious "awe and abstain from eating them. They have a legend that "they were formerly men changed into fish for their sins; and the "Pwo Kareng of Tavoy say—'If people eat them, they will be

" 'transformed to lions.' " (Mason's "Burma", p. 256, *sub tit.* Amphibious Snake-head).

Found in fresh-waters, especially rivers, and sometimes attaining a length of four feet. They protect their young with great courage. Colours :—vary with age and with the water they reside in. Back greyish-green, the immature with a brilliant orange band passing from the eye to the middle of the caudal fin, but in the more mature there are five or six cloudy bands descending to below the lateral line; abdomen orange, the base of each scale darker; on the posterior third of the body and on the dorsal, anal and caudal fins are pearly white spots and there is generally a large black ocellus at the upper part of the base or first-third of the ventral fin, which is grey; caudal orange. B. v., D. 45-55, P. 18, V. 6, A. 28-36, C. 14.

89. *O. striatus*, Bloch.—(Nga-yan-khoung-to, *Burm.*).

Colours :—dark greyish or blackish superiorly becoming dirty-white or yellowish-white beneath; cheeks and lower surface of the mouth streaked and spotted with grey; bands of grey or black from the sides to the abdomen; some spots and bars at the posterior end of the dorsal fin; ventrals and anals greyish with some white lines or spots along the base of the latter; in the *young* there is occasionally a large black ocellus at the end of the base of the dorsal fin and the body may be destitute of any marks. Fresh-waters; prefers stagnant waters of the plains. Attains a length of three feet or more. B. v., D. 37-45, P. 17, V. 6, A. 23-26, C. 13.

90. *O. gachua*, Ham. Buch.—(Nga-yan-pa-naw, *Burm.*).

Colours :—differ materially according to the waters in which they reside; usually greenish, lighter beneath; dorsal, caudal and anal slate coloured with an orange margin; pectoral with a black base transversely barred and having a slight reddish or orange edge. In the *young* there is often a large ocellus with a light edge on the last five dorsal rays; caudal barred. Occasionally it is spotted with white or even orange. Found throughout the fresh-waters at all elevations and sometimes in wells. Attains thirteen inches in length. B. v., D. 32-37, P. 15, V. 6, A. 21-23, C. 12.

91. *O. punctatus*, Bloch.—(Nga-yan-theng-oon, *Burm.*).

Colours :—vary with the water they reside in. Back greenish becoming yellow on the sides and abdomen, with a dark stripe along the sides of the head; several bands from the back pass downwards to the middle of the body; fins spotted, the caudal and vertical with a narrow light edge and dark basal band; ventrals white or grey. Some have scattered spots over the body and head, and this appears most common near the sea and in the breeding

season when they are away from the young. Found in all fresh-waters preferring the stagnant and attaining a foot in length. B. v., D. 29-32, P. 17, V. 6, A. 21-23, C. 12.

Family.—**Labyrinthici.**

Head covered with scales; teeth small. Gill opening rather narrow. A superbranchial organ, composed of thin laminæ, situated in a cavity above the gills. Dorsal and anal spines present and often numerous. Remarkable for the length of time that they can exist out of water.

92. *Anabas scandens*, Dald.—Climbing perch, (Nga-bye-ma, *Burm.*).

Fishes of this genus are said to climb trees: they migrate during the rainy season from pond to pond and have been found œstivating during the hot months.

Opercle serrated. Colours:—rifle green, becoming lightest on the abdomen; during life there are usually four wide vertical body bands and a dark stripe from the angle of the mouth to the preopercle. The *young* have a black blotch on the side of the base of the tail surrounded by a light, sometimes yellow, ring; usually they have a black spot at the end of the opercle and sometimes another at the base of the pectoral. Found in estuaries and fresh-waters; most numerous in situations but little removed from tidal influence. Attains eight inches in length. B. vi., D. $\frac{17-18}{8-10}$, P. 15, V. 1/5, A. $\frac{8-10}{9-11}$, C. 17.

93. *Trichogaster labiosus*, Day.

Lips very thick and covered with papillæ. Soft dorsal elongated and pointed. Ventral fin in a single filiform ray. Colours:—greenish superiorly becoming lighter beneath; from eight to ten obliquely vertical dark bars on the sides; a light yellowish-red band from the eye across the lower jaw behind the lip with a dark edge posteriorly; fins dark; outer edge of anal yellowish red. Found in the Irrawaddy. B. v., D. $\frac{17}{9}$, P. 10, V. 1, A. $\frac{17-18}{18}$, C. 15.

94. *T. fasciatus*, Bl. Schn.

Colours:—superiorly greenish becoming dirty white below; a green spot on either gill cover; eyes red; fourteen or more orange bands pass obliquely downwards and backwards from the back to the abdomen; ventral edged with red and variegated with black, green and white; dorsal and caudal spotted with orange. Found on the coast and in estuaries and far up the larger rivers. Attains a length of five inches. B. v., D. $\frac{15-17}{8-9}$, P. 10, V. 1, A. $\frac{15-18}{14-18}$, C. 15.

Family.—Glyphidodontidæ.

Body more or less short and compressed. A single dorsal fin, the number of spines and rays being nearly equal. Bones of the head armed or smooth. Scales ctenoid.

95. *Tetradrachmum aruanum*, Bloch.

Colours :—pearl white with three vertical black bands, the anterior descending from the first three dorsal spines through the eye over the mouth to the under surface of the lower jaw; the second from the sixth to the ninth dorsal spines to the ventral fins, which are black; the third from the base of the dorsal to the anal; caudal dark, light posteriorly. Marine. B. v., D. $\frac{13-13}{12-11}$, P. 17, V. 1/5, A. $\frac{2}{11-12}$, C. 15.

Order.—ANACANTHINI.

All fin rays soft and flexible. In the sub-order Gadoidei (of which *Bregmaceros atripinnis* is the only representative in this list), the sides of the head are symmetrical and in the sub-order Pleuronectoidei unsymmetrical.

Family.—Gadidæ.

Body more or less elongated; gill openings wide. Scales cycloid, of moderate or small size.

96. *Bregmaceros atripinnis*, Tickell.

Body fusiform. Colours :—rich brown becoming lighter on the abdomen; fins black, except the ventral which is dirty white. Marine : attains a length of five inches or more. D. 1/20+xv.+22, P. 21, V. 6, A. 22+10+26, C. 17.

Family.—Pleuronectidæ.

(*Flat-fish.*)

Body strongly compressed, flattened. They rest on one side, some on the right and some on the left. In the very young the eyes are placed as in other fishes but in older ones both eyes are placed on the superior surface, which alone is coloured; the inferior side of the head remains almost rudimentary.

97. *Pseudorhombus arsius*, Bleeker.

Eyes on right side. From five to ten pointed teeth in each jaw. Colours :—reddish-brown, usually covered with variously-sized rings and often two dark ocelli on the straight portion of the lateral line. Lateral line smooth.; its anterior curve equals half its length. Scales ctenoid. Marine. B. vii., D. 71-79, P. 11 or 12, V. 6, A. 54-61, C. 17.

98. *Synaptura commersoniana*, Lacep.—(Nga-khwe-sha, *Burm.*).

Colours :—leaden grey ; vertical fins black with a broad white outer edge ; some have minute white spots over the body. Marine; grows to a foot long. B. vi., D. 70-81, P. 9, V. 4, A. 60-63, C. 12.

99. *S. orientalis*, Bl. Schn.

No dilated nostril on the blind side ; pectorals on both sides. Colours :—bluish slate colour, usually with short narrow black vertical bands crossing the lateral line ; the body is blotched with darker sometimes as spots, sometimes as bands ; occasionally some white marks ; vertical fins dark ; outer half of pectoral black. Marine. Attains at least nine inches in length. B. vi., D. 62-65, P. 7, V. 5, A. 47-50, C. 16.

100. *S. pan*, Ham. Buch.—Sole. (Nga-la-khyan, *Burm.*).

An enlarged row of scales over the nape distinguishes this fish clearly from the preceding. Colours :—of a dull red or muddy brown or grey, with irregular vertical black blotches or bands; right pectoral black. Found in rivers high above tidal influence. B. vi., D. 57-60, P. 7, V. 6, A. 43-45, C. 14.

101. *Plagusia marmorata*, Bleeker.

Rostral hook long, reaching to some distance behind the lower eye. Two lateral lines on the left side separated by 16-17 rows of scales. Vertical fins confluent, pectorals absent. Colours :—brown finely marbled with darker. Marine. B. vi., D. 99-106, V. 4, A. 75-86, C. 10.

102. *P. bilineata*, Bloch.

Rostral hook reaches to below hind edge of the eye. Vertical fins confluent; pectorals absent. Two lateral lines on the left side, separated by 13-14 rows of scales. Colours :—brownish ; each opercle tinged with bluish black ; each scale lightest in its centre ; fins dull orange. Marine. B. vi., D. 96-102, V. 4, A. 70-74, C. 8.

103. *Cynoglossus brachyrhyncus*, Bleeker.

Rostral hook extends to the symphysis of the lower jaw ; two lateral lines on the coloured side separated by 17-18 rows of scales. Scales ctenoid on both sides. Colours :—brown, irregularly marbled with darker; the opercle sometimes with a dark blotch. Found in brackish waters within tidal reach. B. vi., D. 106, V. 4, A. 78, C. 12.

104. *C. sp.* (*bengalensis* ?).

Rostral hook reaches to below the middle of the front eye ; two lateral lines on the coloured side separated by 14 rows of scales ; scales ctenoid on both sides. Colours :—brown, vertical fins spotted with black and black-edged. Found in the Tsit-tóung. B. vi., D. 105, V. 4, A 68, C. 15.

105. *C. lida*, Bleeker.

Rostral hook just covers the symphysis of the lower jaw; scales ctenoid. Colours:—brownish; a dark mark on the opercle. Marine. B. vi., D. 99-104, V. 4, A. 75-83, C. 12.

Order.—PHYSOSTOMI.

All the rays articulated, except the first in the dorsal and pectoral which are frequently more or less ossified. Ventral fins, when present, abdominal and spineless. Air-vessel, if existing, having a pneumatic duct (except in the Scombresocidæ).

Family.—Siluridæ.

(Cat-fishes.)

Skin scaleless, and either smooth or covered with osseous plates. Provided with barbels, often of great length.

A. *Air vessel not enclosed in bone.*

a. An adipose dorsal.

106. *Macrones aor*, Buch. Ham.—(Nga-young, *Burm.*).

Maxillary barbels eight, very long, extending to or even beyond the caudal fin. Colours:—bluish-leaden superiorly, becoming white beneath; fins yellowish, stained with dark externally in both dorsal and caudal; adipose fin with a black spot at its posterior extremity. Found throughout the plains, attaining several feet in length. B. xii., D. $\frac{1}{7}$ | 0, P. 1/9-10, V. 6, A. 12-13 ($\frac{3-4}{9}$), C. 17.

107. *M. affinis*, Blyth.

Maxillary barbels do not pass the eye. Colours:—body with indistinct cross-bands; a dark spot on the shoulder and a second on the base of the adipose dorsal. A small species from Tenasserim. D. $\frac{1}{7}$ | 0, P. 1-7, V. 6, A. 12 ($\frac{3}{9}$), C. 17.

108. *M. gulio*, Buch. Ham.

Maxillary barbels reach the middle or nearly to the end of the ventral fin. Adipose dorsal short. Dorsal spine strongly serrated interiorly. Colours:—lurid bluish-brown on the back becoming dull white beneath, fins usually black. Estuaries and mouths of large rivers, ascending above tidal reach. B. ix., D. $\frac{1}{7}$ | 0, P. 1/8-9, V. 6, A. 12-15 ($\frac{3-4}{9-11}$), C. 17.

109. *M. microphthalmus*, Day.—(Nga-aik, *Burm.*).

Maxillary barbels reach caudal fin. Adipose dorsal of moderate length. Colours:—light brownish shot with purple. Found in the valley of the Irrawaddy. B. x., D. $\frac{1}{7}$ | 0, P. 1/9, V. 6, A. 12 ($\frac{3}{9}$), C. 17.

110. *M. cavasius*, Buch. Ham.

Maxillary barbels reach to beyond the base of the caudal fin; dorsal spine weak, entire. Colours :—leaden superiorly becoming yellowish along the abdomen and cheek; maxillary barbels, dorsal and caudal fins dark; pectoral, ventral and anal dull white; occasionally a bluish band along the lateral line. Attains upwards of a foot in length. B. vi., D. $\frac{1}{7}$ | 0, P. 1/8, V. 6, A. 11-13 ($\frac{4}{7-9}$), C. 10.

111. *M. carcio*, Buch. Ham.—(Nga-tseng-yaing, *Burm.*).

Maxillary barbels reach the ventrals; dorsal spine serrated posteriorly. Colours :—usually golden with a black shoulder spot; a narrow black band along either side of the lateral line, a lighter parallel one below, and two wider ones above; tips of fins usually dark. Sometimes they are dark with five longitudinal silvery bands. Attains a length of seven or eight inches. B. x., D. $\frac{1}{7}$ | 0, P. 1/9, V. 6, A. 9-12 ($\frac{3-3}{7-9}$), C. 17.

112. *M. leucophasis*, Blyth.—(Nga-nouk-thwa, *Burm.*).

Maxillary barbels reach the end of the anal fin; dorsal spine posteriorly serrated. Colours :—purplish-black over body and fins with some white spots on the body. Rivers : attains a foot or more in length. B. xi., D. $\frac{1}{7}$ | 0, P. 1/8-10, V. 6, A. 11-12 ($\frac{3}{8-9}$), C. 17.

113. *M. bleekeri*, Day.

Maxillary barbels reach to the anal fin. Colours :—brownish-grey with two light long longitudinal bands below the lateral line; a dark spot at the end of the lateral line; fins mostly darkish at their edges. Rivers, not attaining a large size. B. x., D. $\frac{1}{7}$ | 0, P. 9-10, V. 6, A. 9-10 ($\frac{3}{6-7}$), C. 17.

114. *Erethistes hara*, Buch. Ham.—(Nga-kyouk-hpa, *Burm.*).

Dorsal and pectoral spines of moderate strength, the former serrated posteriorly, the latter with strong teeth interiorly and serrated externally. Blunt spinate ossicles in the skin; no elongated caudal ray. Colours :—yellowish-brown, banded or blotched with darker; fins marked with black; barbels annulated with black. Attains a length of five and a half inches. Large rivers and contiguous pieces of water. D. $\frac{1}{6}$ | 0, P. 1/6, V. 6, A. 10-11 ($\frac{3}{7-8}$), C. 15.

115. *E. conta*, Buch. Ham.—(Nga-kouk-thwa, *Burm.*).

Dorsal spine strong, denticulated posteriorly; pectoral spine rather shorter than the head. Skin tuberculated; upper caudal ray alone elongated. Maxillary barbels as long as the head. Colours :—as in *E. hara*, but barbels not annulated. Rivers. D. $\frac{1}{6}$ | 0, P. 1/6, V. 6, A. 11 ($\frac{3}{8}$), C. 17.

116. *Rita buchanani*, Bleeker.—(Nga-htwe, *Burm.*).

Humeral process about as long as the head. Air-vessel with posterior horn-like projections. Maxillary barbels as long as

the head. Colours :—lurid green, lighter below and the hind edge of the dorsal sometimes blackish. Rivers. Attains about four feet in length. B. viii., D. $\frac{1}{8}$ | 0, P. 1/10, V. 8, A. 12-13 C. 19.

117. *Arius** *burmanicus*, Day.—(Nga-young, *Burm.*).

Maxillary barbels do not quite reach the base of the pectoral fin. Teeth in palate in two small oval and widely separated patches. Mouth spatulate. Colours :—above purplish dashed with copper; dull white on the sides and below; dorsal fins externally stained with black. Rivers within tidal influence. Greatly resembles *Macrones aor*. B. vi., D. $\frac{1}{7}$ | 0, P. 1/10, V. 6, A. 19-22 ($\frac{4\text{-}6}{15\text{-}16}$), C. 15.

118. *A. æquibarbis*, Cuv. et Val.

Maxillary and outer mandibular barbels of equal length. Caudal lobes equal one-fourth of total length. Colours :—bluish along the back and sides, becoming white beneath; adipose dorsal black with its inferior and posterior margins yellow; superior portion of dorsal, end of the pectoral and ventrals and anterior part of the anal black. B. vi., D. $\frac{1}{7}$ | 0, P. 1/9, V. 6, A. 22, C. 15.

119. *A. cælatus*, Cuv. et Val.

Resembles the last but the external mandibular barbels are one-fifth shorter than the maxillary and it has A. 19.

120. *A. acutirostris*, Day.

Barbels short. Colours :—upper portion of rayed and of two thirds of adipose dorsal black; pectoral, ventral and anal stained grey. Salween near Maulmain; attains a foot or more in length. B. v., D. $\frac{1}{7}$ | 0, P. 1/10, V. 6, A. 19 ($\frac{5}{14}$), C. 17.

121. *A. venosus*, Cuv. et Val.

Maxillary barbels extend to base of pectoral. Closely allied to *A. sumatranus* but with a shorter head. B. vi., D. $\frac{1}{7}$ | 0, P. 1/10, V. 6, A. 18-19 ($\frac{5\text{-}6}{13}$), C. 17.

122. *A. sona*, Buch. Ham.

Maxillary barbels reach to end of head, or even farther. Teeth in palate villiform in two triangular patches, with their

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* "The breeding of these fishes is peculiar and deserves attention: the eggs of *Arius* "are large, averaging about 0·5 to 0·6 of an inch in diameter, and I found many males, "also of *Osteogeniosus*, with from 15 to 20 of them in their mouths. Some of these eggs "were in an early stage of development, others nearly ready to be hatched; whilst in "the mouth of one specimen was a hatched fry having the yolk bag still adherent. The "eggs filled the cavity of the mouth and extended far back to the branchiæ. * * *

"Whether the male carries about these eggs in his mouth until hatched or only "removes them when danger is imminent from some spot where he is guarding them is "questionable, but in none of the specimens that I examined did I find a trace of food in "the intestines of the males which had been engaged in this interesting occupation." Day's "Fishes of India," pp. 456-457.

apices converging and their bases emarginate, almost confluent with the vomerine ones. Dorsal spine strong; as long as the head without the snout, and posteriorly serrated. Colours:—brownish above, bluish glossed with gold on the sides; a dirty white below; fins with a bluish black tinge. Marine: entering the mouths of large rivers and ascending beyond tidal influence: attains three feet in length. B. vi., D. $\frac{1}{7}$ | 0, P. 1/12, V. 6, A. 17 ($\frac{8}{11}$), C. 17.

123. *A. buchanani*, Day.

Maxillary barbels reach to first third of the pectoral. Colours:—silvery along the back, lighter on the sides and below; pectoral and dorsal edged posteriorly with blackish; adipose with a well defined black spot. B. vi., D. $\frac{1}{7}$ | 0, P. 1/10, V. 6, A. 22 ($\frac{8}{15}$), C. 17.

124. *A. gagora*, Buch. Ham.

Maxillary barbels not quite so long as the head. Colours:—purplish superiorly, becoming dull white beneath; fins stained with grey or black; a blackish mark on the adipose dorsal. Seas, estuaries and tidal rivers. Attains a length of eighteen inches or more but is commonly seen about eight or ten inches long. B. vi., D. $\frac{1}{7}$ | 0, P. 1/10, V. 6, A. 18 ($\frac{5-8}{13-12}$), C. 17.

125. *A. jatius*, Buch. Ham.

Maxillary barbels shorter than the head. Colours:—dark bluish along the back, lighter on the sides and beneath; fins yellowish, lower half of dorsal stained with grey, upper edge deep black; a deep black spot on the upper half of the adipose fin, caudal edged with black; anal with a dark spot on its edge near the middle. Estuaries and rivers ascending far above tidal reach: attains a foot or more in length: closely allied to the preceding. B. vi., D. $\frac{1}{7}$ | 0, P. 1/10, V. 6, A. 18 ($\frac{5}{13}$), C. 17.

126. *Batrocephalus mino*, Buch. Ham.

Barbels minute; dorsal and pectoral spines serrated on both edges. Lower jaw projecting. Colours:—silvery, darkest along the back and upper lobe of the caudal fin. Sea and estuaries, entering rivers. B. v., D. $\frac{1}{7}$ | 0, P. 1/7, V. 6, A. 20 ($\frac{5}{15}$), C. 15.

127. *Osteogeniosus* militaris*, Linn.

Barbels extend beyond the end of the head when laid backwards. Colours:—silvery, darkish superiorly; fins tinged with red. Marine: entering rivers. B. v., D. $\frac{1}{7}$ | 0, P. 1/10-11, V. 6, A. 19-22 ($\frac{4-5}{15-17}$), C. 17.

128. *O. sthenocephalus*, Day.

Barbels as long as the head. Colours:—silvery, darkest superiorly. A single specimen captured near Maulmain. Differs from preceding in having a much narrower head, a deeper anal

* See note on page 675.

fin, and a flatter snout. B. v., D. $\frac{1}{7}$ | 0, P. 1/9, V. 6, A. 20 ($\frac{5}{15}$), C. 17.

129. *Pangasius buchanani*, Cuv. et Val.

Maxillary barbels reach the base of the pectoral. Caudal fin deeply forked. Colours:—silvery, darkest along the back and glossed with purple on the sides; cheeks and under surface of the head shot with gold. A large fish attaining four feet or more in length: a foul feeder. Common in the estuaries and rivers. B. ix.-x., D. $\frac{1}{7}$ | 0, P. 1/12, V. 6, A. 31-34 ($\frac{4\cdot5}{27\cdot29}$), C. 19.

130. *Pseudotropius goongwaree*, Sykes.—(Nga-myeng-oot-hpa, *Burm.*).

All the barbels are longer than the head, and the maxillary barbels reach the anal fin. Dorsal spine finely serrated posteriorly; pectoral strongly denticulated internally. Colours:—silvery, darkest superiorly. Rivers; attains a foot in length. B. vi., D. $\frac{1}{7}$ | 10, P. 1/13, V. 6, A. 54 ($\frac{3}{51}$), C. 17.

131. *Ps. taakree*, Sykes.

Maxillary barbels reach the anal fin*. Colours:—silvery, with a gloss of green along the back; caudal stained with grey at its edges. Attains a foot and a half in length. B. vi., D. $\frac{1}{6\cdot7}$ | 0, P. 1/10-11, V. 6, A. 43-52 ($\frac{3\cdot4}{40\cdot50}$), C. 17.

132. *Ps. acutirostris*, Day.

Maxillary barbels reach the anal fin. Colours:—silvery, a black spot on the occiput and a black blotch at the base of the dorsal fin. Attains four inches in length. Found in rivers, mostly in their lower portions. B. vi., D. $\frac{1}{6}$ | 0, P. 1/7, V. 6, A. 42-46 ($\frac{2}{40\cdot44}$), C. 17.

133. *Ps. garua*, Buch. Ham.

Maxillary barbels reach to middle or end of the ventral fin; nasal barbels short. Adipose dorsal disappears in the adult. Colours:—silvery; fins stained with grey. Found in the large rivers. Attains two feet or more in length. B. vi., D. $\frac{1}{7}$, P. 1/11, V. 6, A. 29-36 ($\frac{3}{26\cdot33}$), C. 17.

134. *Olyra burmanica*, Day.

Jaws of equal length. Caudal lanceolate. Colours:—dark brown. Pegu hill streams. D. 8 | 0, P. $\frac{1}{4}$, V. 7, A. 16 ($\frac{3}{13}$), C. 17.

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* In Day's Fishes of India, p. 471, under the heading of "Synopsis of species" is "2. *Pseudotropius taakree*, A. 43-46. Maxillary barbels reach middle of pectoral fin, the mandibular ones shorter than the head. Deccan, Kistna and Jumna rivers." On p. 472, where the species is described, it is said that the maxillary barbels reach the base of the anal fin and the mandibular ones are as long as the head. According to Beavan's 'Hand-book of fresh-water fishes of India' (which appears to follow Günther), p. 133, the maxillary barbels reach the anal fin. I have therefore (and for other reasons) adopted the description above.

b. A single rayed and no adipose dorsal fin.

135. *Callichrous bimaculatus*, Bloch.

Maxillary barbels reach the middle of the pectoral or the commencement of the anal fin. Anal not confluent with the caudal. Colours:—silvery shot with purple; a blackish blotch above the pectoral at a little distance from the head. Fresh-waters: attains a foot and a half in length. B. xii., D. 4, P. 1/13, V. 8, A. 60-75 ($\frac{2\cdot3}{68\cdot72}$), C. 17.

136. *C. pabo*, Buch. Ham.

Maxillary barbels reach to the hind edge of the eye or a little further; the mandibular ones are fine and short. Colours (in the Burmese variety, *C. nigrescens*, Day):—silvery with a badly marked shoulder spot; clouded all over with fine dark spots; caudal lobes with black tips. In this variety the pectoral spine is entire. Rivers; not common. B. xii., D. 5, P. 1/14, V. 9-10, A. 66-71 ($\frac{3}{63\cdot68}$), C. 17.

137. *C. macrophthalmus*, Blyth.—(Nga-noo-than, *Burm.*).

Four barbels, the maxillary reaching to the eighth or tenth anal ray. Anal not confluent with the caudal. Colours:—silvery; a round black blotch above the middle spines, very distinct in Burmese specimens (var. *C. notatus*, Day) of the pectoral. Irrawaddy and all its branches. B. xv., D. 4, P. 1/15, V. 8, A. 69-73 ($\frac{2\cdot3}{66\cdot70}$), C. 18.

138. *Wallago attu*, Bloch.—(Nga-bat, *Burm.*).

Voracious and by no means a cleanly feeder; maxillary barbels nearly twice the length of the head; barbels four; teeth numerous and cardiform; adipose fin wanting; anal not joining the caudal; pectoral spine feeble, not serrated exteriorly. Colours:—uniform, fins sometimes covered with fine dots. Attains at least six feet in length. Sometimes (*apud* Day) this fish is termed a fresh-water shark. B. xix.-xxi., D. 5, P. 1/13-15, V. 8-10, A. 86-93 ($\frac{4}{82\cdot90}$), C. 17.

139. *Silurus cochinchinensis*, Cuv. et Val.

Upper jaw projects beyond the lower; pectoral spine scarcely serrated. Barbels four; maxillary about twice the length of the head. Colours:—leaden, purplish below, and covered all over with minute black points, which sometimes form an irregular finger mark on the shoulder; caudal sometimes yellow. Found in the hill ranges of Arakan and Tenasserim. B. xiv.-xv., D. 4, P. 1/11, V. 10, A. 62-64 ($\frac{2}{60\cdot62}$), C. 17.

c. Two rayed but no adipose dorsal fin.

140. *Chaca lophioides*, Cuv. et Val.

Colours:—brownish, marbled with darker. Found in the larger rivers and sluggish waters in connection with them: "hides

"itself in the mud from which, by its lurid appearance and a num-
"ber of loose filamentous substances on its skin, it is scarcely dis-
"tinguishable and with an immense open mouth is ready to seize
"any small prey that may be passing along. In order that it may
"see what is approaching its eyes are placed on the crown of the
"head." Ham. Buch. *apud* Day in. "Fishes of India", p. 482.
B. v., D. 1/3-4 | 19-25, P. 1/5, V. 6, A. 8-10 | 8-12, C. 11.

141. *Plotosus canius*, Buch. Ham.

Nasal barbels nearly reach the nape; the maxillary ones the end of the opercle. Fish somewhat eel-like, but not so flexible as an eel. Colours:—uniform brownish-olive; vertical fins with black edges. Estuaries: attaining three feet and upwards in length. B. xi.-xiii., D. $\frac{1}{5}$, 2 D. + C. + A. 242—271, P. 1/10-11, V. 12.

B. *Air vessel more or less enclosed in bone.*

a. No adipose dorsal fin.

142. *Clarias magur*, Buch. Ham.—(Nga-khoo, *Burm.*).

Maxillary barbels reach to the middle of the pectoral fin; vertical fins not united; pectoral spine very finely serrated. Colours:—dingy or green-brownish superiorly becoming lighter beneath; vertical fins usually with reddish margins. B. ix., D. 62-76, P. $\frac{1}{8\text{-}11}$, V. 6, A. 45-58, C. 15-17. An amphibious slimy fish found in ponds and ditches and fond of mud. Attains eighteen inches in length.

143. *Sacchobranchus fossilis*, Bloch.—Scorpion fish: (Nga-gyee, *Burm.*).

Maxillary barbels reach the middle of the pectoral or even the commencement of the ventral fins; pectoral spine serrated. Anal fin separated from the caudal by a notch. Colours:—leaden, sometimes with two longitudinal yellow bands. Found throughout the larger rivers, attaining a foot or more in length. Wounds from the pectoral spine are much dreaded. B. vii., D. 6-7, P. $\frac{1}{7}$, V. 6, A. 60-79, C. 19.

b. An adipose dorsal fin.

144. *Silundia gangetica*, Cuv. et Val.

A single pair of short barbels. Colours:—bluish along the back becoming silvery on the sides; fins stained with grey. Estuaries and larger rivers, attaining six feet or more in length. B. xi.-xii., D. $\frac{1}{7}$ | 0, P. 1/11-13, V. 6, A. 40-46 ($\frac{4}{36\text{-}44}$), C. 17.

145. *Eutropiichthys, vacha*, Buch. Ham. (var. *E. burmanicus*, Day).—(Ka-tha-boung, *Burm.*).

Nasal barbels almost reach to the dorsal fin, the maxillary to the middle of the pectoral spine; all the others are longer than

the head. The pectoral spine is serrated externally and reaches the anal fin. Colours :—silvery, greyish along the back; pectoral and caudal usually edged with black. Large rivers. Grows to over a foot in length. B. xi., D. $\frac{1}{7}$ | 0, P. 1/13-16, V. 6, A. ($\frac{3\cdot4}{4\cdot5}$), C. 17.

146. *Amblyceps mangois*, Buch. Ham.

Head broader than the body, flat and obtuse at the muzzle. Barbels large and maxillary barbels reaching as far back as the tip of the pectoral fin. Colours :—olive-brown above, paler beneath; in some a dark line commences opposite the opercle and soon sub-divides, one branch going to the centre of the base of the caudal and the other to the base of the anal. Fresh-water: up to five inches in length. B. xii., D. $\frac{1}{6}$ | 0, P. 1/7, V. 6, A. 9-12 ($\frac{2\cdot3}{7\cdot9}$), C. 19.

147. *Gagata cenia*, Buch. Ham.—(Nga-nan-young, *Burm.*).

Six barbels and a rudimentary nasal pair. Colours:—dull grey; the outer two thirds of the pectoral, the outer halves of both dorsals and of the ventral and anal black; caudal whitish. The *young* are of a yellowish-bronze colour, becoming silvery on the abdomen, with three dark bands over the head and four more over the back descending as low as the lateral line; the caudal has a semi-lunar black band or a black blotch on each lobe; the dorsal a dark mark across it. Large rivers: attains a foot in length. B. v.-vi., D. $\frac{1}{6}$/0, P. $\frac{1}{9}$, V. 6, A. 14-16 ($\frac{3\cdot4}{11\cdot12}$), C. 19.

148. *Bagarius yarrellii*, Sykes.

Maxillary barbels with broad bases and rather longer than the head; dorsal spine smooth; pectoral spine serrated internally; skin somewhat scabrous on the head and slightly so on the body. Colours:—body grey or yellowish, with large, irregular, brown or black markings and cross-bands; a black base to all the fins and generally a dark band. Throughout the course of large rivers. B. xii., D. $\frac{1}{6}$/0, P. 1/12, V. 6, A. 13-15 ($\frac{3}{10\cdot12}$), C. 17.

149. *Glyptosternum trilineatum*, Blyth.

Maxillary barbels reach as far as the end of the head; lips not fringed; dorsal spine rather slender; pectoral spine broad. Colours :—chestnut-brown with three light longitudinal bands. Fresh-water, in hilly districts generally: attains a foot or more in length. D. $\frac{1}{6}$ | 0, P. $\frac{1}{10}$, V. 6, A. 13 ($\frac{3}{10}$), C. 19.

150. *Exostoma berdmorei*, Blyth.

Maxillary barbels reach the base of the pectoral fin; snout pointed; caudal forked. Colours:—dingy olive-brown with obscure dark broad bands, presenting more or less of a clouded appearance; the fins mostly darker; below pale. Tenasserim. D. $\frac{1}{6}$ | 0, P. 1/10, V. 6, A. 6, C. 14.

Family.—**Scopelidæ.**

Deep sea fishes. Adipose dorsal fin present. Barbels absent.

151. *Harpodon nehereus*, Buch. Ham. Bombay duck.

Body elongated and compressed; eyes small. Pectoral and ventrals long. Scales thin and deciduous. The scales commence opposite the origin of the dorsal fin. Colours:—head, back and sides semi-transparent like gelatine, light greyish with minute star-like black or brownish dots; anterior part of the abdomen pale, silvery-bluish, rest greyish-white; cheeks and opercles pale silvery-bluish, dotted like the body; fins transparent, coloured like the body but more closely dotted so as to appear greyish, and black at their extremities; in some specimens the fins are black; iris golden. Abundant in the rivers and estuaries; attaining sixteen inches in length. B. xxiii.-xxvi., D. 12-13 | 0, P. 11-12, V. 9, A. 13-15, C. 19.

Family.—**Scombresocidæ.**

Dorsal fin rayed and opposite the anal. Adipose fin absent. Body scaled. Barbels present or absent.

152. *Belone cancila*, Buch. Ham.—(Nga-hpoung-ro, *Burm.*).

Both jaws prolonged into a long slender beak, provided with pointed teeth. Body elongate, slender, and covered with small scales. Lateral line not keeled. Colours:—greenish-grey superiorly becoming whitish along the abdomen; a silvery streak having a dark margin extends along the body from opposite the orbit to the centre of the base of the caudal fin; the whole of the upper two-thirds of the body is closely marked with fine black spots, while there are from four to five larger blotches along the side between the bases of the pectoral and anal fins; these are absent in the young; dorsal and caudal posteriorly tipped darker, and whitish with a greyish margin; eyes golden. Throughout the waters of the plains; very voracious; usually swims near the surface. Attains a foot in length. B. x., D. 15-18 ($\frac{2\cdot3}{13\text{-}15}$), P. 11, V. 6, A. 16-18 ($\frac{2\cdot3}{14\text{-}16}$), C. 15.

153. *B. strongylurus*, V. Hasselt.

Both jaws prolonged into a beak. Colours:—summit of back and head yellowish-green, with minute brown dots fading into silvery on the sides and white on the abdomen; cheeks and opercles silvery; a deep blue longitudinal band, bordered beneath by another broader one of silver, passes along the posterior half of the sides; dorsal with a little orange along its upper edge; it and sometimes the anal bright yellow and the rays dotted with brown; pectoral and ventral diaphanous, the latter occasionally with a black spot at the

base; caudal yellowish or greenish, minutely dotted with black and having a round bluish-black spot in the centre near the root; iris silvery; upper surface of the eye bluish black. Seas and coasts and is sometimes taken in estuaries and tidal rivers: attains two feet or more in length. B. xii., D. 13-15, P. 11, V. 6, A. 16-18, C. 15.

154. *Hemiramphus limbatus*, Cuv. et Val.

Upper jaw short, the lower elongated into a beak. Colours:—a brilliant silvery lateral band, which posteriorly becomes as broad as one scale; dorsal, anal, and extremity of caudal sometimes stained blackish. Marine; ascends tidal rivers and may be captured in fresh-waters. B. x., D. 13-14, P. 10, V. 6, A. 13-15, C. 14.

155. *H. ectunctio*, Buch. Ham.

Viviparous. Lower jaw only elongated like a beak. Colours:—dull greenish-brown with a narrow and indistinct silvery lateral band; end of upper jaw milk white. Mouths of large rivers, extending up within tidal influence: attains at least six inches in length. B. x., D. 13-14, P. 9, V. 6, A. 10-12, C. 15.

Of the genus *Exocœtus* (or '*Flying-fish.*') of this family there are many off the coasts but the species have not yet been determined.

Family.—**Cyprinodontidæ.**

Head and body covered with scales. No finlets posterior to the dorsal. Adipose fin absent. Barbels none. Teeth villiform in both jaws.

156. *Haplochilus melastigma*, McClelland.

Ventrals very minute. Colours:—dull greenish along the back becoming of a dull white on the abdomen; outer portion of anal rays white edged; a narrow dark line along the middle of the side terminating in a dull spot at the centre of the base of the caudal fin. B. iv., D. 6-7, P. 15, V. 6, A. 20-24, C. 15.

157. *H. panchax*, Buch. Ham.

Colours:—upper surface greenish, becoming dull white on the sides and beneath; a bright silvery spot on the head; fins yellowish, the lower half of dorsal covered with a large black spot; dorsal, caudal and anal margined with orange. Attains a length of two or three inches. B. v.-vi., D. 7-11, P. 15, V. 6, A. 15-17, C. 13.

Family.—**Cyprinidæ.**

(*Carps.*)

Body oblong or elongated. Mouth toothless. A single-rayed dorsal fin. Head scaleless; body scaled or scaleless.

158. *Homaloptera bilineata*, Blyth.

Colours:—brownish with a wide chestnut band passing from the snout through the orbit to the base of the dorsal fin, which last has a black centre; caudal deep brown with white margins; ventrals crossed by a black band. Tenasserim. B. iii., D. 10 ($\frac{2}{8}$), P. 17, V. 9, A. 7 ($\frac{2}{5}$), C. 19.

159. *Discognathus lamta*, Buch. Ham.

Colours:—greenish with a bluish-green band along the centre of the body and extending along the middle of the caudal fin; generally a dark spot behind the gill opening; abdomen yellowish-green; fins yellowish stained darker at their margins; a black spot at the base of each dorsal ray. Tenasserim; attains a length of eight inches: dies almost as soon as removed from the water and putrifies rapidly after death. B. iii., D. 11 ($\frac{3\cdot2}{8\cdot5}$), P. 15, V. 9, A. 7 ($\frac{2}{5}$), C. 17.

160. *Labeo nandina*, Buch. Ham. (var. *L. macronotus.*)—(Nga-nek-pya, *Burm.*).

Barbels four and short. Colours:—dark greenish above becoming lighter on the sides and beneath; a few cloudy blotches along the sides; the centre of many of the scales reddish. B. iii., D. 24-26 ($\frac{2\cdot3}{22\cdot24}$), P. 15, V. 9, A. 7 ($\frac{2}{5}$), C. 19.

161. *L. calbasu*, Buch. Ham.

Barbels four, the rostral slightly the longer. Colours:—blackish; sometimes, and especially in specimens from clear streams, many of the scales have a scarlet centre; fins black, occasionally the end of the upper lobe of the caudal is white. Grows to three feet in length. Irrawaddy and Maulmain. B. iii., D. 16-18 ($\frac{3}{13\cdot15}$), P. 19, V. 9, A. 7 ($\frac{2}{5}$), C. 19.

162. *L. stoliczkæ*, Steindachner.

A pair of very short maxillary barbels concealed in the labial fold. Colours:—of a deep leaden silvery along the upper half of the body, beneath white shot with gold; a black mark behind the gill opening. Irrawaddy and Maulmain. B. iii., D. 15-16 ($\frac{3}{12\cdot13}$), P. 19, V. 9, A. 7 ($\frac{2}{5}$), C. 19.

163. *L. gonius*, Cuv. et Val.—(Nga-dien, *Burm.*).

Rostral and maxillary barbels present but short. Colours:—greenish along the back becoming lighter on the sides; scales darkest at their margins, many having red lunules on them. Attains nearly five feet in length. B. iii., D. 16-18 ($\frac{2\cdot3}{13\cdot14}$), P. 17, V. 9, A. 7 ($\frac{2}{5}$), C. 19.

164. *L. rohita*, Buch. Ham.—(Nga-khyeng-myek-tsee-nee, *Burm.*).

A pair of short and thin maxillary barbels. Colours:—brownish or bluish along the back becoming silvery on the sides and

beneath; sometimes there is a red mark on each scale; in some specimens the fins are black. Fresh-waters: attains three feet or more in length. B. iii., D. 15-16 ($\frac{3}{12}$-$\frac{3}{13}$), P. 17, V. 9, A. 7 ($\frac{3}{8}$), C. 19.

165. *L. angra*, Buch. Ham.—(Nga-loo, *Burm.*).

No rostral barbels but a short maxillary pair present. Colours: —brownish along the back with a blotch at the side of the tail, and some have a second blotch at the commencement of the lateral line. Has been found at Tsit-toung, and high up the Irrawaddy. B. iii., D. 12-13 ($\frac{2}{10}$-$\frac{3}{10}$), P. 16, V. 9, A. 7 ($\frac{3}{3}$), C. 19.

166. *L. boga*, Buch. Ham.

Two minute maxillary barbels. Colours:—orange with the fins of a reddish tinge; sometimes a dark spot on the shoulder. Rivers: said to attain a foot in length. B. iii., D. 11-13 ($\frac{2}{9}$-$\frac{3}{10}$), P. 16, V. 9, A. 7 ($\frac{3}{8}$), C. 19.

167. *Osteochilus rostellatus*, Cuv. et Val.

Barbels four; the maxillary pair half as long as the orbit; the rostral pair shorter. Colours:—grey becoming lighter below; narrow dark lines along the body; fins black. Irrawaddy and Salween; attains two feet in length. B. iii., D. 20 ($\frac{2}{18}$), P. 18, V. 9, A. 7 ($\frac{3}{8}$), C. 19.

168. *O. neilli*, Day.

Barbels four; rostrals do not reach the orbit, maxillary pair extend to beneath its centre. Colours:—greyish-yellow, deepest superiorly; a dull spot near the root of the caudal fin, and another ill-defined one near the commencement of the lateral line; fins yellowish-orange, dorsal darkest at its basal half. Tsit-toung and Bhee-leng rivers; up to six inches in length. B. iii., D. 17-18 ($\frac{3}{18}$-$\frac{3}{16}$), P. 15, V. 9, A. 7 ($\frac{3}{8}$), C. 19.

169. *O. cephalus*, Cuv. et. Val.

One pair of short maxillary barbels. Colours:—greenish with the base of each scale darkest. Pegu; to one foot in length. B. iii., D. 16 ($\frac{3}{13}$), P. 20, V. 9, A. 9 ($\frac{3}{8}$), C. 19.

170. *Dangila burmanica*, Day.

The maxillary barbels as long as the eye, the rostral pair shorter. Colours:—silvery; some of the scales with dark spots at their bases forming rows, or horizontal bands; fins orange; the edges of the caudal stained. Maulmain and Tavoy; up to ten inches in length. B. iii., D. 26-28 ($\frac{2}{24}$-$\frac{3}{25}$), P. 16, V. 9, A. 7 ($\frac{3}{8}$), C. 19.

171. *D. berdmorei*, Blyth.

Rostral barbels equal to the length of the orbit. Colours:—uniform (in spirit). Tenasserim. B. iii., D. 26 ($\frac{3}{23}$), V. 9, A. 7 ($\frac{3}{8}$).

172. *Cirrhina mrigala*, Buch. Ham.—(Nga-gyeng, *Burm.*).

Two barbels; upper lip entire. Colours:—silvery, dark grey along the back, sometimes having a coppery tinge; the pectoral,

ventral and anal fins orange, stained with black. Rivers and tanks; growing to three feet. B. iii., D. 15-16 ($\frac{3}{12\text{-}13}$), P. 15, V. 9, A. 8 ($\frac{3}{5}$), C. 15.

173. *Semiplotus modestus*, Day.

Barbels absent. Last dorsal ray serrated. Colours:—silvery, darkest on the upper half of the body; ventrals and anals tipped with orange. Hill ranges near Akyab. B. iii., D. 24 ($\frac{4}{20}$), P. 15, V. 9, A. 9-10 ($\frac{3}{6\text{-}7}$), C. 19.

174. *S. macclellandi*, Bleeker.

Barbels absent. Dorsal ray smooth. Colours:—leaden silver, darkest superiorly; pectoral, ventral and anal fins orange. Rivers; attains two feet in length. B. iii., D. 27-28 ($\frac{3}{24\text{-}25}$), P. 16, V. 10, A. 9 ($\frac{2}{7}$). C. 19.

175. *Catla buchanani*, Cuv. et Val.—(Nga-thaing, *Burm.*).

Colours:—greyish above becoming silvery on the sides and beneath; fins dark coloured, in some specimens nearly black. Fresh or brackish water, being found within tidal influence. It attains at least six feet in length. B. iii., D. 17-19 ($\frac{3\text{-}4}{14\text{-}16}$), P. 21, V. 9, A. 8 ($\frac{3}{5}$), C. 19.

176. *Amblypharyngodon atkinsonii*, Blyth.—(Nga-pan-ma, *Burm.*).

Lateral line incomplete. Colours:—silvery with a golden gloss about the head. Throughout the province and Upper Burma, attaining six inches in length. B. iii., D. 9-10 ($\frac{2\text{-}3}{7}$) P. 15, V. 9, A. 8 ($\frac{2}{6}$), C. 19.

177. *A. mola*, Buch. Ham.—(Nga-tseng-tsat, *Burm.*).

Lateral line incomplete. Colours:—a silvery lateral band and usually dark markings on the dorsal, caudal and anal fins. Freshwaters, attaining four inches in length. B. iii., D. 9 ($\frac{2}{7}$), P. 15, V. 9, A. 7 ($\frac{2}{5}$), C. 19.

178. *Barbus sarana*, Buch. Ham.—(Nga-khoon-ma, *Burm.*).

Barbels four; last undivided dorsal ray strong and finely serrated with small teeth lying in a double row. Colours:—silvery, darkest superiorly; opercles shot with gold; fins whitish or yellowish-white and externally stained with grey; caudal with a dark inner edge. Throughout Burma; grows to one foot. B. iii., D. 11 ($\frac{3}{8}$), P. 15, V. 9, A. 8 ($\frac{3}{5}$), C. 19.

179. *B. goniosoma*, Bleeker.

Barbels four; dorsal spine osseous, strong and finely serated posteriorly. Colours:—silvery; fins orange. Mergui; up to six inches in length. B. iii., D. 11 ($\frac{3}{8}$), P. 15, V. 8, A. 7 ($\frac{2}{5}$), C. 19.

180. *B. stracheyi*, Day.

Barbels four; dorsal spine strong and smooth. Colours:—uniform silvery. Akyab and Maulmain; growing to a large size. B. iii., D. 11 ($\frac{3}{8}$), P. 17, V. 9, A. 7 ($\frac{2}{5}$), C. 17.

181. *B. stevensonii*, Day.

Barbels four; dorsal with a smooth, weak osseous ray. Colours:—silvery, upper portion of the body the darker; numerous black specks along the side; a black spot at the base of the caudal and a dark band along the dorsal fin. Hills near Akyab. B. iii., D. 12 ($\frac{3}{8}$), P. 17, V. 9, A. 8 ($\frac{3}{8}$), C. 19.

182. *B. blythii*, Day.

Barbels four; last undivided ray of the dorsal articulated. Colours:—uniformly silvery (in spirit). Tenasserim; specimen is two inches in length. B. iii., D. 12 ($\frac{3}{8}$), P. 15, V. 9, A. 8 ($\frac{3}{8}$), C. 17.

183. *B. macrolepidotus*, Cuv. et Val.

Barbels two; last dorsal ray scarcely osseous and finely serrated. Colours:—silvery, lighter on the sides and below; fins orange; anterior edge of the dorsal and outer margins of the caudal black; a badly developed darkish band from the dorsal to the ventral fin. Tavoy; up to nine inches in length. B. iii., D. 12 ($\frac{4}{8}$), P. 17, V. 9, A. 7 ($\frac{2}{8}$), C. 19.

184. *B. chola*, Buch. Ham.—(Nga-khoon, *Burm.*).

Barbels two; dorsal ray stout, osseous and entire. Colours:—silvery; opercles shot with purple and gold; a dark mark along the base of the anterior rays of the dorsal fin; a row of dark spots along its centre, and generally a spot on the tail near the end of the lateral line. Throughout Burma, attaining five inches in length. B. iii., D. 11 ($\frac{3}{8}$), P. 15, V. 9, A. 7 ($\frac{2}{8}$), C. 19.

185. *B. burmanicus*, Day.

Barbels two; osseous dorsal ray entire and of moderate strength. Colours:—silvery along the back and becoming lighter on the sides and beneath; a dull blotch before the base of the caudal fin; fins silvery with a dull band down the centre of the dorsal. B. iii., D. 12 ($\frac{4}{8}$), P. 15, V. 9, A. 7 ($\frac{2}{8}$), C. 17.

186. *B. apogon*, Cuv. et Val.—(Nga-tha-lee, *Burm.*).

Barbels absent; last undivided dorsal ray strong and serrated. Colours:—silvery, each scale with a dark spot at its base. Found throughout the province, attaining at least eight inches in length. B. iii., D. 12 ($\frac{4}{8}$), P. 17, V. 10, A. 8 ($\frac{3}{8}$), C. 19.

187. *B. stoliczkanus*, Day.

Barbels absent; last undivided osseous ray irregular serrated. Colours:—silvery; an oblong black mark on the lateral line about the third scale and a deep black mark above and a little behind the posterior extremity of the anal fin, superiorly it extends almost to the back whilst it is yellow anteriorly. Eastern Burma: attains four inches in length. B. iii., D. 10-11 ($\frac{2-3}{8}$), P. 14, V. 9, A. 7 ($\frac{2}{8}$), C. 19.

188. *B. phutunio*, Buch. Ham.

Barbels absent; dorsal osseous ray serrated, the serratures often becoming indistinct in the adult. Colours :—reddish-brown with a black band passing from the back to opposite the middle of the pectoral fin ; a second from the back to the posterior end of the base of the anal; two other lighter bands pass downwards, one from the anterior, the other from the posterior extremity of the dorsal; a dark band down the centre of the dorsal; another at the base of the caudal. In the adult the pectoral band decreases in size, whilst that on the dorsal fin breaks up into spots and the fish then resembles *B. punctatus* of Malabar and the Coromandel coast. Attains three inches in length. B. iii., D. 10-11 ($\frac{2-3}{8}$), P. 15, V. 9, A. 8 ($\frac{3}{5}$), C. 19.

189. *B. stigma*, Cuv. et Val.—(Nga-khoon-ma, *Burm.*).

Barbels absent; last dorsal ray osseous and entire. Colours :—silvery; a dark spot near the posterior end of the lateral line and another across the base of the middle dorsal rays (occasionally absent); at certain seasons has a scarlet band along the side. Throughout Burma, attaining five inches in length. B. iii., D. 11-12 ($\frac{3}{8-9}$), P. 17, V. 9, A. 8 ($\frac{3}{5}$), C. 19.

190. *B. unimaculatus*, Blyth.

Barbels absent ; last dorsal ray osseous, weak, entire. Colours :—silvery ; a black mark at the base of each dorsal ray. Tenasserim. B. iii., D. 11 ($\frac{3}{8}$), P. 11, V. 8, A. 7 ($\frac{2}{5}$), C. 19.

191. *B. puntio*, Buch. Ham.

Barbels absent; last dorsal ray osseous and entire. Colours :—silvery; a black band encircles the free portion of the tail and includes the tip of the anal fin; dorsal fin orange, tipped with black. Throughout Burma, attaining about three inches in length. B. iii., D. 11 ($\frac{3}{8}$), P. 15, V. 9, A. 7 ($\frac{2}{5}$), C. 21.

192. *Nuria danrica*, Buch. Ham. (var. *N. alta*, Blyth).—(Nga-tseng-boo, *Burm.*).

Colours :—a broad black lateral band, sometimes absent. Lateral line wanting in some Burmese specimens (var. *N. malabarica*, Day). Throughout coast districts of Burma. B. iii., D. 8 ($\frac{2}{6}$), P. 15, V. 9, A. 8 ($\frac{3}{5}$).

193. *Rasbora elanga*, Buch. Ham.

Two short rostral barbels. Colours :—uniform silvery, with sometimes a leaden coloured band along the upper portion of the side. Irrawaddy and its tributaries and branches, attaining eight inches in length. B. iii., D. 9 ($\frac{2}{7}$), P. 15, V. 8-9, A. 7 ($\frac{2}{5}$), C. 19.

194. *R. daniconius*, Buch. Ham.

Barbels absent. Colours :—brilliant with purple and green irradiations; a black band more or less distinct passes from the

eye to the base of the caudal, sometimes it only exists just at its termination and thus forms a spot at the sides of the base of the tail; or in some young specimens a light silvery band superiorly edged with yellow is seen along the sides; caudal lobes occasionally grey-tipped. In tanks and ponds throughout Burma, attaining eight inches in length. B. iii., D. 9 ($\frac{3}{7}$), P. 15, V. 9, A. 7 ($\frac{3}{8}$), C. 19.

195. *R. buchanani*, Bleeker.

Barbels absent. Colours:—silvery, with a faint streak along the side; caudal black tipped. Throughout Burma. B. iii., D. 9 ($\frac{3}{7}$). P. 15, V. 9, A. 7-8 ($\frac{2}{5\text{-}6}$), C. 19.

196. *Aspidoparia morar*, Buch. Ham.—(Nga-yeng-boung-tsa, *Burm.*).

Mouth small, crescent-shaped, situated below the snout; lateral line concave; barbels none. Colours:—back light brown divided from the silvery side by a burnished streak. Attains six inches or more in length. B. iii., D. 9-10, P. 15, V. 8, A. 10-12 ($\frac{2}{8\text{-}10}$), C. 19.

197. *Rohtee cotio*, Buch. Ham. (var. *R. alfrediana*, Cuv. et Val.) —(Nga-hpan-ma, *Burm.*).

A serrated but not very strong spine to the dorsal fin; barbels absent or rudimentary. Colours:—silvery, darkest along the back and sometimes with a burnished lateral band; some have a black blotch before the base of the dorsal fin and another on the nape. Attains six inches in length. B. iii., D. 11-12 ($\frac{3\text{-}4}{8}$), P. 13, V. 10, A. 29-36 ($\frac{23\text{-}33}{27\text{-}33}$), C. 19.

198. *R. belangeri*, Cuv. et Val.—(Nga-nek-pya, *Burm.*).

Upper jaw projects beyond the lower; barbels absent. Colours: —silvery, back greyish. Throughout Burma, attaining to fifteen inches and more in length. B. iii., D. 11-12 ($\frac{3\text{-}4}{8}$), P. 17, V. 9, A. 20-21 ($\frac{3}{17\text{-}18}$), C. 17.

199. *Barilius guttatus*, Day.

A rudimentary rostral or maxillary pair of barbels may be present. Colours:—silvery shot with purple; one or two rows of blue spots along the side; lower caudal lobe orange, its upper lobe with a dark edging, and a dark band along the upper half of the lower lobe. Irrawaddy; to seven inches in length. B. iii., D. 9 ($\frac{3}{7}$), P. 15, V. 9, A. 14 ($\frac{3}{11}$), C. 17.

200. *B. bola*, Buch. Ham.

Barbels absent. Colours:—silvery; with two or more vertical rows of bluish blotches along the sides, the upper being about twelve to twenty and the lower intermediate; some spots also on the head; lower half of the dorsal fin slightly grey; caudal orange, stained with grey and black; pectoral ventral and anal orange; the

colours are somewhat similar to those of a trout. Attains a foot in length. B. iii., D. 10-11 ($_{7-8}^{3}$), P. 13, V. 9, A. 13 ($_{10}^{3}$), C. 19.

201. *Danio spinosus*, Day.

A pair of small rostral barbels. One or two spines on the edge of the orbit. Lateral line concave. Mouth narrow, directed obliquely upward. Colours :—silvery, with an ill-defined lateral band and some vertical yellow lines on the interior half of the body; dorsal and anal greyish with reddish margins anteriorly. In the immature there is a dark humeral spot, and a steel-blue lateral band goes to the centre of the caudal fin, which has a scarlet stripe along the last half of its centre. Some examples have a wide blue central band and two narrow parallel ones superiorly, and the same number inferiorly divided by yellow ground colour. Pegu; growing to four inches. B. iii., D. 15-16 ($_{13}^{2-3}$), P. 13, V. 7, A. 19-20 ($_{16-17}^{3}$), C. 19.

202. *D. æquipinnatus*, McClell.

Rostral barbels half as long as the orbit; maxillary ones minute. Colours :—yellowish-white; a wide bluish band extends along the body from the eye to the centre of the base of the caudal fin; in its course are sometimes several round silvery spots; below it is another narrow band, which occasionally joins the central one anteriorly; above the central band are two other lighter ones; intermediate ground yellow; fins yellowish; dorsal and anal fins each with a broad bluish band along its outer half; in some specimens there is a dark mark behind the gill opening. Tenasserim. B. iii., D. 12-14 ($_{10-12}^{2}$), P. 17, V. 8, A. 14-16 ($_{12-14}^{2}$), C. 19.

203. *D. dangila*, Buch. Ham.

Rostral barbels a little shorter than the head; maxillary pair slightly longer. Colours:—back olive; abdomen silvery; sides with several narrow blue lines which on the anterior half or two-thirds of the body form a beautiful net-work; a dark spot behind the gill covers; anal with two or three blue stripes. Hills above Akyab: grows to seven or eight inches. B. iii., D. 11-13 ($_{2-11}^{2}$), P. 12, V. 7, A. 17-18 ($_{14-15}^{3}$), C. 20.

204. *D. albolineatus*, Blyth.

Maxillary barbels reach beyond the base of the pectoral fin; rostrals to the superior margin of the orbit. Colours :—greenish superiorly; a scarlet band with a dark lower edge commences from below the base of the dorsal fin and, gradually widening, continues to the centre of the base of the caudal; dorsal margined with red; anal with a yellow stripe along its centre. Maulmain in tanks and streams. Grows to two inches. B. iii., D. 9 ($_{7}^{2}$), P. 13, V. 7, A. 13-15 ($_{11-13}^{2}$), C. 19.

205. *D. nigrofasciatus*, Day.

Rostral barbels absent; maxillary pair reach to below the orbit. Colours:—a dark band passes along the side of the body with a second dotted line below it; dorsal and anal spotted with black in lines; in some specimens the body is intensely blue. Pegu and Maulmain. Minute. B. iii., D. 9 ($\frac{2}{7}$), P. 15, V. 7, A. 13 ($\frac{2}{11}$), C. 19.

206. *Perilampus atpar*, Buch. Ham.

First ray of the ventral fin produced into a long filament, the remaining rays rudimentary. Colours:—silvery with a burnished lateral band; dorsal and caudal fins yellow. Throughout Burma, attaining four inches in length. B. iii., D. 9 ($\frac{2}{7}$), P. 10, V. 5-6, A. 22-24 ($\frac{2\text{-}3}{18\text{-}21}$).

207. *P. laubuca*, Buch. Ham.

Pectoral fin very long, reaching the anal. Colours:—silvery, with some golden vertical stripes during life; fine dots over the body; a black mark, shot with green, above the base of the pectoral fin and another at the base of the caudal; the last third of the lobes of the caudal fin are tipped with black. Attains a length of three inches. B. iii., D. 10-11 ($\frac{2}{8\text{-}9}$), P. 13, V. 7, A. 19-23 ($\frac{2}{17\text{-}21}$), C. 19.

208. *Chela sladoni*, Day.

Colours:—silvery; caudal black edged. Irrawaddy. B. iii., D. 10 ($\frac{2}{8}$), P. 11, V. 8, A. 20-21 ($\frac{2}{18\text{-}19}$), C. 21.

209. *Ch. sardinella*, Cuv. et Val.

Colours:—silvery. Irrawaddy and Salween, attaining six inches in length. B. iii., D. 9 ($\frac{2}{7}$), B. 13, V. 8, A. 21 ($\frac{2}{19}$).

210. *Ch. clupeoides*, Bloch.

Colours:—silvery. Attains six inches in length. B. iii., D. 9 ($\frac{2}{7}$), P. 13, V. 9, A. 13-15 ($\frac{2}{11\text{-}13}$), C. 19.

211. *Chibacalla*, Ham. Buch.—(Nga-yeng-boung-tsa, *Burm.*).

Colours:—uniform silvery. Greatly resembles the preceding. Maulmain: grows to seven inches. B. iii., D. 9 ($\frac{2}{7}$), P. 13, V. 9, A 13-15 ($\frac{2}{11\text{-}13}$), C. 19.

212. *Botia berdmorei*, Blyth.

A double erectile spine below each eye. Barbels eight. Colours:—buff with ten or eleven darkish vertical bands extending from the neck to the abdomen; head banded and a dark line from the eye to the snout; numerous oblong blotches over the body; dorsal with three or four rows of spots; caudal with five or six; anal with two. Irrawaddy and waters in its vicinity and Tenasserim. B. iii., D. 13-15 ($\frac{2}{11\text{-}13}$), P. 13, V. 8, A. 7 ($\frac{2}{8}$), C. 17.

213. *B. histrionica*, Blyth.

Barbels eight. Colours:—olive with five dark vertical bands on the body and two on the head; all the fins with two broad

brown bars. Pegu. B. iii., D. 10 ($\frac{2}{8}$), P. 15, V. 8, A. 7 ($\frac{2}{5}$), C. 19.

214. *Acanthopsis choirorrhyncus*, Bleeker.

Barbels eight, all short. A small bifid erectile spine situated in advance of the orbit. Colours :—brownish, with twelve bands across the back and the same number of blotches along the lateral line ; two rows of blotches across the dorsal and three across the anal fin. Upper portions of the Irrawaddy. B. iii., D. 11 ($\frac{2}{5}$), P. 11, V. 7, A. 8 ($\frac{3}{5}$), C. 11.

215. *Lepidocephalicthys berdmorei*, Blyth. (Nga-pa-tsoo-thaw, *Burm.*).

Suborbital spine bifid. Two pairs of rostral and one pair of maxillary barbels ; mandibular flap with two or three pair of short ones. Colours :—rich yellowish-brown, with a dark band along the body, composed of spots ; upper surface of body covered with fine markings ; a black spot at the base of the caudal ; dorsal and caudal lineated with fine spots ; some also on the outer portions of the pectoral, ventral and anal. Maulmain. B. iii., D. 8 ($\frac{2}{6}$), P. 10, V. 8, A. 7-8 ($\frac{2}{5\text{-}6}$), C. 17.

216. *Acanthophthalmus pangia*, Buch. Ham.

Barbels six ; one rostral and two maxillary pairs. Caudal entire. A small double erectile sub-orbital spine. Colours :—light cinnamon. Northern portions of Burma. B. iii., D. 8 ($\frac{2}{6}$), P. 10, V. 6-7, A. 7 ($\frac{2}{5}$), C. 17.

217. *Apua fusca*, Blyth.

Barbels eight ; one rostral, one mandibular, and two maxillary pairs. Ventrals absent. Colours :—brownish with a longitudinal darker band. Pegu. B. iii., D. 8 ($\frac{2}{6}$), P. 11, A. 8 ($\frac{2}{6}$), C. 16.

218. *Nemacheilus rubidipinnis*, Blyth.

Barbels six. No erectile spine under the eye. Caudal emarginate with rounded angles. Colours :—reddish-brown with twelve to sixteen irregular darkish bands descending from the back and ending in dark spots below the lateral line ; four to six oblique bands on the dorsal fin ; six to eight irregularly vertical bars on the caudal which has a black ocellus on the upper part of its base. Tenasserim. B. iii., D. 15-16 ($\frac{2}{13\text{-}14}$), P. 14, V. 8, A. 7 ($\frac{2}{5}$), C. 19.

219. *N. zonalternans*, Blyth.

Caudal entire. Colours :—ten to eleven bars descend down the lower two-thirds of the body to the abdomen with intermediate half bands superiorly between them ; dorsal and caudal fins spotted in bands. Tenasserim. B. iii., D. 2/9, A. 11 ($\frac{2}{5}$), P. 11, V. 9, A. 7 ($\frac{2}{5}$), C. 19.

220. *N. cincticauda*, Blyth.

Barbels well developed, the maxillary reaching to below the front edge of the orbit. Caudal slightly forked. Colours :—yellow-

ish, with ten regular brown zones encircling the body and sometimes but not always broader than the ground colour, or the bands may be broken up and irregular; a dark bar at the base of the caudal, and a dark band between the eye and the snout; occasionally a dark mark on the opercle; dorsal with some black spots. B. iii., D. 10 ($\frac{2}{8}$), P. 11, V. 8, A. 7 ($\frac{2}{8}$), C. 19.

Family.—**Clupeidæ.**

(*Herrings.*)

Barbels absent; body covered with scales, which are generally thin and often easily detached; abdomen generally compressed into an edge which is often serrated; dorsal fin rather short: adipose fin absent: anal fin often very long.

221. *Engraulis telara*, Buch. Ham. (Nga-khwon-hgnyat, *Burm.*).

Upper pectoral ray elongated; snout slightly projecting; maxilla reaches gill opening. Colours:—greenish along the back becoming silvery dashed with gold along the abdomen; dorsal and caudal yellow with the upper lobe of the caudal and the upper margin of the dorsal stained with black; pectoral in the *young* yellowish, but in the *adult* of a deep blue-black except the elongated ray which is usually uncoloured in its posterior three-fourths; ventral and anal uncoloured. Found in all large rivers; growing to at least sixteen inches. B. xii.-xiii., D. 1+14-15 ($\frac{2\text{-}3}{12}$), P. 15, V. 7, A. 70-80 ($\frac{2}{68\text{-}78}$), C. 19.

222. *E. purava*, Buch. Ham. (Nga-tan-rwek, Nga-pya, *Burm.*).

Snout slightly projecting; maxilla nearly reaches base of pectoral fin. Colours:—silvery, steel-blue along the back and a golden tinge about the head; dorsal and caudal fins yellowish; others uncoloured. Marine; ascending tidal rivers and frequently found in fresh-water tanks to which inundations have extended: grows to a foot. B. xii., D. 1+13 ($\frac{3}{10}$), P. 15, V. 6, A. 45-47 ($\frac{2}{43\text{-}45}$).

223. *Chatoessus chacunda*, Buch. Ham.

Snout projecting considerably beyond the gape of the mouth; last dorsal ray not prolonged. Colours:—golden shot with purple; lines formed of spots along the rows of scales in the upper third of the body; a black spot on the shoulder. Seas and estuaries. Var. C. *selanghat*, in which the height of the head instead of being equal to its length is equal only to its length excluding the snout, is common. B. vi., D. 17-19 ($\frac{3\text{-}4}{14\text{-}18}$), P. 15, V. 8, A. 19-20 ($\frac{2}{17\text{-}18}$), C. 19.

224. *Ch. modestus*, Day.

Body short, oval, deep, and moderately compressed, with a cutting, serrated, abdominal edge. Snout moderately projecting

over the mouth. Last dorsal ray not prolonged. Scales regularly arranged. Colours :—yellowish shot with purple. Irrawaddy and its branches and Salween at Maulmain ; grows to five or six inches in length. B. vi., D. 14-16 ($_{11}^{3}$-$_{13}$), P. 16, V. 8, A. 27-28 ($_{24}^{3}$-$_{25}$), C. 21.

225. *Clupea lile*, Cuv. et Val.

Snout obtuse, lower jaw slightly the longer. Colours :—golden, shot with purple ; a brilliant silvery band along the side as deep as one scale ; caudal dark tipped, shot with blue ; a brilliant bronze coloured spot on the occiput. Seas and coasts. B. vi., D. 14-15 ($_{11}^{3}$-$_{12}$), P. 13, V. 8, A. 17-20 ($_{15}^{2}$-$_{18}$), C. 21.

226. *C. variegata*, Day.

Anterior scales irregularly, posterior regularly arranged. Jaws of about equal length. Colours :—silvery, glossed with gold and bronze ; a dark humeral spot ; a row of about eighteen bars across the back ; dorsal fin with a black band in the lower portion of its posterior half ; caudal black-tipped. Irrawaddy and its branches ; up to seven inches in length. (This appears to be the Burmese representative of *C. chapra*). B. vi., D. 15-18, P. 17, V. 8, A. 24-29, C. 17.

227. *C. palasah*, Cuv. et Val.—The Hilsa. (Nga-tha-louk, *Burm.*).

Lower jaw not projecting. Colours :—silvery, shot with gold and purple ; no spots along the body in the *mature*, except occasionally one behind the opercle. The *young* have a row of spots along the upper third of the body, and are usually of a bronze colour along the back with silvery sides and a burnished silvery band going from above the eye to the upper half of the caudal fin, which fin is often deeply edged with black in its entire circumference. Marine: ascending all the large rivers for breeding purposes. B. vi., D. 18-19, P. 15, V. 9, A. 19-22, C. 19.

228. *Pellona sladeni*, Day.

Body rather elongated and strongly compressed ; cleft of mouth lateral. Abdominal edges serrated. Scales large or of moderate size. Colours :—silvery ; opercles golden ; caudal black-edged. Upper portion of the Irrawaddy ; attaining to seven inches in length. B. vi., D. 13, P. 11, V. 7, A. 44, C. 21.

229. *Megalops cyprinoides*, Brouss.

Lower jaw projecting. Abdomen flat, not trenchant. A single dorsal opposite the ventrals. Colours :—summit of head dark olive ; back bluish green in the adult, lighter in the immature ; abdomen silvery with bluish reflections ; margins of scales, sides of head and lateral line of a brilliant silver ; centre of jaws black ; dorsal and caudal greyish, minutely dotted with black and the

margins blackish as is also the last elongated dorsal ray; pectoral, ventral and anal diaphanous with some black dots; the last anal ray dark; eyes silvery, the orbital margin with a dark tint. Found occasionally in rivers but more frequently in tanks. B. xxiv.-xxvi., D. 19-21, P. 15-16, V. 10, A. 24-27, C. 19.

Family.—**Notopteridæ.**

Head and body scaly. Barbels none. Adipose fin wanting. Tail tapering.

230. *Notopterus kapirat*, Lacép.—(Nga-hpay, *Burm.*).

Body much compressed. Abdomen doubly serrated. Scales small. Lateral line distinct. Upper profile of head concave. Colours:—silvery, darkest on the back; some gloss of yellow about the head; numerous fine greyish spots everywhere; upper surface of dorsal whitish; eyes golden. Throughout the fresh and brackish waters; attaining two feet or more in length. B. viii., D. 7-8, P. 17, V. 5-6, A. 100-110, C. 19.

231. *N. chitala*, Buch. Ham.

Snout rather prominent; upper profile of head deeply concave. Colours:—superiorly coppery-brown with about fifteen transverse silvery bars joining over the back; sides silvery; fins stained with greyish spots, which are like black stars in the caudal region, placed in a single or double row close to the anal fin and sometimes extending the whole length of its base. Fresh-waters; attaining four feet in length. B. viii.-ix., D. 9-10, P. 16, V. 6, A. 110-125, C. 12-14.

Family.—**Symbranchidæ.**

(*Eels.*)

Body long and snake-like. No pectoral or ventral fins. Vertical fins rudimentary, reduced to folds of skin and no paired ones. Barbels absent.

232. *Amphipnous cuchia*, Buch. Ham.—(Nga-shen, *Burm.*).

Body slimy. No apparent fins. Colours:—greenish or chestnut-brown, becoming lighter on the abdomen; on every part are scattered small round black spots, occasionally they are seen flesh coloured. Fresh and brackish waters near the coast; it is fond of lying on the grass near the water.

233. *Monopterus javanensis*, Lacép.—(Nga-shen-nee, *Burm.*).

Colours:—light greenish with or without dark spots; or else the whole body nearly black. Fresh and brackish waters.

Family.—**Murænidæ.**

(*True eels.*)

Body long and snake-like: pectorals present or absent.

234. *Anguilla bengalensis*, Gray et Hardw.—(Nga-leng-ban, *Burm.*).

Lower jaw prominent; pectorals present; scales rudimentary. Colours:—brownish superiorly, becoming yellowish on the sides and beneath; in some examples the whole of the upper surface of the body covered with black spots and blotches some of which are continued to the dorsal fin which has a light edging; anal with a dark marginal band and a light outer edging. B. xii., D. 250-305, P. 18, A. 220-250, C. 10-12.

235. *Muræsox telabon*, Cuv.—(Nga-theng-bhaw-pouk, *Burm.*).

Each fin ray arises by two distinct roots. Colours:—upper surface of back and head olive becoming brown posteriorly; abdomen dull white, becoming silvery inferiorly; chin, throat, and gill covers with golden reflections; vertical fins with dark margins. Attains ten feet or more in length. Marine. B. xvii.-xix., P. 15-16, D. 270-285, A. 195-210, C. 10.

236. *M. cinereus*, Forsk.

Colours:—silvery, becoming white on the abdomen; vertical fins yellowish with either a narrow or a wide outer black edge; pectoral yellow or black. The most common species of the genus. Marine. B. xx.-xxii., P. 14-16, D. 230-270, A. 190-220, C. 10.

Order.—LOPHOBRANCHII.

Family.—Syngnathidæ.

Gill openings small, and at the posterior angle of the gill cover. A single dorsal fin.

237. *Hippocampus trimaculatus*, Leach.

Body compressed; occipital crest with a coronet: tail prehensile. Colours:—pale yellow-ochre with two rows of blackish spots on the dorsal fin. The eggs are hatched by the male, being deposited in pouches at the tail and carried about by the fish. Coasts of Burma. D. 19-20, P. 17, A. 4. Rings 11+36.

Order.—PLECTOGNATHI.

Family.—Gymnodontes.

Body rounded. One dorsal fin without spines. No ventrals. Mouth narrow. Jaw-bones forming a beak with a sharp edge.

238. *Xenopterus naritus*, Richardson.

Tail and caudal fin distinct. Dorsal and anal fins long and with many rays. Body more or less covered with fine dermal spines. They are able to inflate their bodies with air and to float

on the water abdomen uppermost. Colours :—pale yellow; darkest along the back and in the lower two-thirds of the dorsal fin. Found throughout the rivers far above tidal influence, attaining a large size. B. v., D. 32-38, P. 19, A. 28-32, C. 12.

239. *Tetrodon patoca*, Bl.

Back and abdomen densely covered with very small spines. Colours :—upper half brown or black with numerous round or oval white spots; sides and abdomen silvery; a yellowish tinge dividing the dark back from the white side. In the *young* the caudal fin is stained in its outer half. Coast and estuaries. D. 10-11, P. 18, A. 8-10, C. 10-11.

240. *T. cutcutia*, Buch. Ham.—(Nga-boo-deng, *Burm.*).

Body smooth. Colours:—greenish-yellow above, becoming white on the abdomen; brownish lines forming a net-work on the sides of the body; a large black ocellus margined with white on the sides; a light band passes from the eye; the whole of the back marked with greenish reticulations enclosing lighter spaces; fins greyish; caudal tipped with carmine; a red spot on the throat. Fresh-waters, attaining about three and a half inches in length. B. v., D. 10-11, P. 21, A. 10, C. 7.

241. *T. fluviatilis*, Buch. Ham.

Head, back, and belly armed with small spines, which can be retracted beneath the skin. Colours :—greenish-olive superiorly, becoming white along the sides and below; back and sides with large black blotches, leaving very little of the ground colour apparent; one or two irregular light bands, one crossing between the eyes, another between the pectorals, and often one or two more over the back; abdomen covered with round or angular black spots and blotches much wider than the ground colour; fins yellowish; end of caudal stained dark and sometimes with black spots. Coasts, estuaries and large rivers far above tidal influence. B. v., D. 14-16, P. 22, A. 12-13, C. 11.

Sub-class.—*CHONDROPTERYGII.*

(*Cartilaginous fishes.*)

Order.—PLAGIOSTOMATA.

Family.—**Carchariidæ.**

(*Sharks.*)

242. *Carcharias gangeticus*, Müll et Henle.—(Nga-man-hpyoo, *Burm.*).

No spiracles. Snout very short and obtuse; nostrils close to its extremity. Teeth 27-30 on either jaw, and all serrated.

Colours :—grey superiorly becoming dull white beneath ; fins grey ; the pectoral, ventral and anal with light edges ; posterior portion of caudal rather dark. Ascending rivers to above tidal influence. One of the most ferocious of Indian sharks.

Family—**Pristidæ.**

(*Saw-fishes.*)

Snout much produced, flattened, with large teeth on its edges, thus having a saw-like appearance.

243. *Pristis cuspidatus*, Latham.—(Nga-tat-wai, *Burm.*).

Caudal with a distinct lower lobe. From 23 to 34 pairs of broad teeth, which do not commence so far forward as in other species ; in the young the hinder edge is barbed. Dorsal fin arises behind the root of the vertebral ; caudal with a lower lobe. Colours :—greyish-yellow above, whitish beneath ; iris golden with a black edge. Marine ; ascending rivers above tidal influence.

CHAPTER XX.

LAND, FRESH-WATER AND ESTUARINE MOLLUSCA.

[BY W. T. BLANFORD, OF THE GEOLOGICAL SURVEY OF INDIA.]

So little has hitherto been done towards determining the Mollusca of the Burmese coasts that it is hopeless to attempt even a sketch of the fauna. The species occurring have not been ascertained in the majority of cases and the collections made have not been by any means sufficiently adequate to afford a complete idea even of the prevalent forms. As many parts of the coast are rocky there is a much richer littoral fauna than on the western side of the Bay of Bengal.

The estuarine shells, found in the creeks and salt marshes of the river deltas and in the mangrove swamps lining portions of the coast, have received rather more notice but still our knowledge of them is very imperfect. The land and fresh-water shells, on the other hand, have been extensively collected and described by several writers, and have perhaps received, on the whole, more attention than any other sub-division of the animal kingdom except birds. There is, in consequence, very little difficulty in giving a general idea of the forms represented.

Taking the land shells first, it should be recollected that they belong to two different classes of Mollusca, but to two classes very much more closely allied to each other than to any of the other classes into which the Mollusca are divided. These classes are (1st) the operculated* land shells which are frequently arranged apart from the ordinary univalve shells of the seas or rivers, such as whelks, periwinkles and *Paludinidæ*, on account of having a breathing chamber not furnished with certain appendages known as gills, and (2nd) the *Pulmonata* or true snails without opercula. By those naturalists who attach great importance to the modifications of the breathing organ the operculated land shells are sometimes classed as a peculiar order or sub-order, called *Neurobranchi-*

* The operculated shells are those furnished with an operculum, a horny or shelly disc attached to the "foot" of the animal, horny and nearly circular in most Indian and Burmese land shells provided with it, and closing the mouth of the shell when the animal is retracted. It must not be confounded with a shelly or membranaceous substance, attached to the shell and not to the animal, sometimes found closing the mouth of ordinary snails, destitute of an operculum, in winter or during the dry season.

ata, and sometimes united with the true *Pulmonata*. The latter course is certainly a mistake for the two groups differ in almost every detail of their organization and even the form of the breathing chamber is quite distinct, and as the only difference of any importance between the so-called *Neurobranchiata* and the ordinary *Gasteropoda* or *Prosobranchiata* consists in the adaptation of the breathing sac in accordance with the medium in which each form lives, as there is in some families, as *Littorinidæ* and *Rissoidæ* a gradation between pure air breathers and pure water breathers, and as an instance is even known in the estuarine genus *Cerithidea*, inhabiting brackish creeks and salt swamps, of two closely allied species one possessed of gills and the other quite destitute of them, it is plain that the distinction is adaptative and of no structural importance as evidence of relation.

Both of the two groups of land shells, the operculated and the non-operculated, or the air breathing Prosobranchiate *Gasteropoda* and the *Pulmonata*, are represented by numerous species in Burma. The former, indeed, are very much more common and represented by many more forms in Burma than in the Peninsula of India generally, with the exception, perhaps, of the hills along the Malabar coast. Their forms, too, are, on the whole, more remarkable and varied, and some of them are exquisitely coloured or sculptured. Many are minute but the largest are of considerable size, some forms of *Cyclophorus* being upwards of two and a half inches in diameter. The non-operculate shells also vary in size but minute forms are rather less numerous.

A list of the known Burmese land shells is given in the following pages. Figures of almost all of these will be found in the "Conchologia Indica" of Hanley and Theobald, but the descriptions are scattered through many different works and can only be found united in Pfeiffer's "Monographia Heliceorum" and "Monographia Pneumonopomorum", neither of which works is illustrated. The former contains the non-operculate forms, the latter those possessed of opercula.

The following are the genera occurring. Those in the first family noticed—the *Rissoidæ*—are of minor importance. The rissoids are principally small marine, estuarine and fresh-water shells, and it is uncertain whether *Acmella* is justly referred to them. *Truncatula* is scarcely a land shell being confined to the sea shore: *Acmella hyalina* is a very minute, hyaline, smooth, conoidal form of doubtful affinities and only found hitherto on limestone hills near Maulmain.

The family *Pomatiasidæ* contains only the genus *Pomatias*, which is abundant in Southern Europe and is represented by isolated

species in the Eastern Himalayas, the ranges south of the Assam valley, and the Arakan hills, where one form is found. The shells are turrited, horny in texture and finely ribbed.

The *Cyclophoridæ* (Cyclotidæ or Cyclotacea of many writers) comprise the great bulk of the operculated land shells of Burma and of the neighbouring countries. They are divided into three well marked families: 1, the *Cyclophorinæ*, discoid or conical shells frequently richly coloured or with a rough epidermis; 2, the *Diplommatinidæ*, discoid, conical or ovate, all of one colour throughout or nearly so, and nearly all having some raised sculpture across the whorls, and all, too, distinguished by a constriction at some distance behind the mouth, but in the ovate and turritedly-ovate forms (*Diplommatina*) this constriction is more or less concealed by the last whorl; 3, *Pupininæ*, ovate or turrited shells usually of one colour and often very richly coloured, destitute of constriction and, as a rule, of sculpture. They are usually larger shells than the *Diplommatinidæ*, many of which are very minute.

The genera of *Cyclophorinæ* found in Burma are four in number. *Cyclophorus* comprises discoid and turbinate shells, the former simply coiled in the form of a disc and flat above, the latter conical above and rounded below (the spire being always considered the upper part and the mouth the lower). In this genus the spire is never much raised, the aperture is circular, destitute of notches or projecting processes and usually thickened and the operculum is horny and nearly flat. In the sub-genus *Scabrina* there is a rough epidermis, the operculum is thickened and the margins of the whorls of which the operculum is composed consist of narrow free lamellæ; the shell is depressed and subdiscoidal. In *Pterocyclus* there is a small wing-like process covering the corner of the aperture where the peristome (or edge of the shell surrounding the mouth) joins the last whorl, and beneath this wing there is a deep notch in the shell. *Spiraculum* resembles *Pterocyclus* but has in addition a tube open at both ends, at one end into the whorl and at the other into the air, attached to the last whorl close to the suture a little behind the mouth. In both *Pterocyclus* and *Spiraculum* the operculum is horny, convex or flat, thick, with the edges of the whorls free. In *Rhiostoma* the mouth is free and furnished with a subtubular process projecting upwards in front, there is also a sutural tube as in *Spiraculum*, the operculum is shelly, very thick, and deeply concave inside. *Leptopoma* is a conical shell, rather thin, with a thin horny operculum. *Lagochcilus* is also subconical and like a small *Cyclophorus*, but with a small vertical groove across the peristome close to the place where it joins the last whorl.

The *Diplommatininæ* comprise *Alycæus*, subdiscoidal or subconical, usually of small size, with a very marked constriction some distance behind the mouth and, in many cases, strong ribbing transverse to the whorls behind the constriction. There is also a small tube running back from the constriction for a greater or less distance along the suture, opening into the whorl in front, and closed behind. *Diplommatina* is subfusiform or elongately ovate, of minute size, without a sutural tube, generally white or amber coloured and usually with vertical ribs. *Clostophis* is only known from one specimen; it resembles *Diplommatina*, except that the last whorl is free and descending. It is far from certain that the solitary type is anything but a distorted *Diplommatina*.

The *Pupininæ* include four genera, but the species are few in number. *Megalomastoma* is a turrited thick shell, about an inch in length, with a circular aperture destitute of grooves or tubular processes. The operculum is thin and horny. The shell has a thick brown epidermis. *Hybocystis* is a solid shell, egg-shaped, flattened above the aperture which is round and destitute of grooves or tubes; the operculum is shelly, multispiral outside, paucispiral within. This genus is the largest of the *Pupininæ* being nearly one and a half inches in length and four-fifths of an inch in diameter. *Pupina* and *Raphaulus* are smaller shells, very highly polished and ovate in form; in the first the peristome is marked by two deep transverse incisions, one above, the other on the left side; in the second there is a tube opening in the peristome itself close to its junction with the last whorl and running back to a short distance outside the shell.

The *Helicinidæ* differ much in structure from the other families of land shells. The operculum is not round but lunate or semi-circular, shelly, transparent, devoid of spiral structure, and in one genus, *Hydrocena*, furnished with an internal process. It should here be remarked that in all probability *Helicina* and *Hydrocena* really belong to different families. *Helicina* is a lenticular, smooth or nearly smooth form whereas. *Hydrocena* (*Georissa*) is sub-turrited or subconical with rounded whorls and, as a rule, with raised spiral sculpture. The few Burmese forms of *Helicina* are small, none exceeding one-third of an inch in diameter, but the species of *Georissa* are minute.

The true *Pulmonata* are nearly twice as numerous as the operculated land shells and comprise, in the same manner, forms belonging to several families, although by far the greater portion are included amongst the *Helicidæ*. The forms referred to the *Testacellidæ* differ greatly from the typical genus, a carnivorous type of slug. But little is known of the habits of *Streptaxis* and *Ennea*;

the former a peculiar hyaline shell, more or less depressed and with the lower whorls excentric from the axis of the upper so as to have a remarkable appearance of distortion, the latter also hyaline but turrited or pupiform. Both have a peculiarly bicoloured animal, red and white or yellow.

The only true slug, *Limax viridis*, yet described from Burma is so imperfectly known that its generic relations are obscure; it is a small green species inhabiting mangrove bushes. The genus *Helicarion*, however, comprehends several slug-like mollusca having the animal much too large for complete retraction into the shell, which is somewhat ear-shaped, thin and with high lustre. *Vitrinopsis* is another Vitrina-like genus. *Ariophanta* is reversed, depressed, and thin with a sharp keel. *Macrochlamys* is composed of smooth discoid or sub-discoid shells, all very thin with a thin lip and high lustre. The animal is provided with long linguiform processes to the mantle, and these processes, whilst the animal is crawling, are reflected over the upper surface of the shell. The relations of the shells referred to *Nanina* are less accurately determined, all are more or less discoidal but with some sculpture above. *Sitala* consists of thin turbinate or subconical species, usually with some sculpture: *Hemiplecta* of comparatively large sub-discoid shells, sculptured above, smooth below. *Sophina* is a genus of discoid or sub-discoid species, smooth, thin, and resembling *Macrochlamys* but remarkable for having a slit-like groove in the margin of the mouth below, near the axis of the shell. *Sesara* is lenticular or discoidal, ribbed transversely to the whorls above, smooth below: there are usually teeth in the mouth and the lip is more or less thickened. *Trochomorpha* comprises thin, lenticular shells very sharply keeled. *Plectopylis* consists of thick discoid shells, for the most part quite flat above and concave beneath: the lip is thickened and often toothed and there is a remarkable barrier formed by teeth and transverse laminæ in the whorls some distance behind the aperture. The true *Helices* found in Burma are not numerous and are mostly distinguished by having the margin of the aperture slightly expanded, the majority are flat shells but *H. capitium* is conical and finely coloured. *H. bifoveata* is concave both above and below. The animals of the genera *Helicarion*, *Vitrinopsis*, *Ariophanta*, *Macrochlamys*, *Nanina*, *Sitala*, *Hemiplecta*, *Sophina* and *Sesara* have a large glandular depression, sometimes, as in *Macrochlamys*, with a projecting lobe above, at the posterior extremity of the creeping disk or 'foot'. This is extremely minute in *Trochomorpha* and wanting in *Helix* and *Plectopylis*. Several other peculiarities of structure, such as a groove running round the edge of the foot, are also characteristic of the former group.

The other genera of the *Helicidæ* are distinguised, as a rule, by being much more elongate or turrited. *Amphidromus* comprises some large handsome species conically ovate in form, lemon yellow in colour in parts, usually classed as *Buliminæ*. Some of these shells are worn as an ornament by the women in parts of Tenasserim. *Stenogyra gracilis* is a small white lustreless turrited shell, common throughout India and Burma: the animal is lemon yellow. *Glessula*, commonly classed as *Achatina*, consists of thin, horny, highly polished species, some with short, others with high spires. The mouth ends in an imperfect channel which appears as if truncated below. *Hapalus* consists of whitish sub-ovate shells of moderate size; *Pupa* of minute ovate forms, the mouth usually denticulate. *Hypselostoma* is conical or sub-discoidal with the mouth free, expanding and not opening in the usual direction but turned upwards or forwards. *Clausilia* is a turrited shell, reversed, with teeth in the mouth; the peculiar sub-genus *Oospira* consisting of thick ovate shells, whilst in *Nenia*—a south American sub-genus represented by one form in Pegu and another in Upper Burma—the mouth is free and expanded.

The *Veronicellidæ* are shelless mollusks covered with a thick coriaceous mantle; the breathing and other orifices are below the margin. The *Cuccineidæ*, or amber-snails, are named from their colour; they are thin shells with large mouths and a short spire, found in damp places and sometimes amongst the leaves of palm trees.

As a rule, all land shells are most abundant in the neighbourhood of limestone, and the limestone hills so common in parts of Burma usually abound in mollusks. Not infrequently some species are confined to the neighbourhood of limestone, and occasionally particular forms appear restricted to one hill or range of hills. There is a remarkable instance near Maulmain, one of the richest localities for land shells in the world. The various isolated limestone hills in the Salween and Attaran valleys are in many instances inhabited by peculiar species differing from those found at the other hills. These hills are separated from each other by flat land liable to flooding and it is very probable that the tract was formerly an archipelago and that the sea occupied what are now the low flats of the Salween valley. This is probably the cause of the present isolation of the species occurring. Thus at the 'Farm-Caves', *Sophina schistotelis* and *S. discoidalis* *Sesara pylaica*, *Clausilia philippiana*, *Streptaxis sankeyi*, *Hybocystis gravida*, and *Raphaulus chrysalis* occur, none of which, Stoliczka says, are found on the perfectly similar limestone hill at Damotha (*Dham-ma-tha*), only fifteen miles distant, where, however, *Sophina*

forabilis, *Sesara infrendens*, *Hydrocena* (*Georissa*) *liratula*, *Diplommatina carneola*, *Pterocyclus* (*Rhiostoma*) *haughtoni*, &c., are met with.

Several of the above forms are peculiar, so far as the Burmese area is concerned, no species of *Rhiostoma*, *Hybocystis* or *Raphaulus* having been found elsewhere in Burma, whilst *Clostophis* and the peculiar type of *Clausilia* (*Oospira*), represented by *C. philippiana* and its allies, has not been discovered anywhere else in the world, and *Sophina* is almost peculiar. *Clostophis*, however, may, as already stated, be merely a distorted *Diplommatina*, no second specimen having been found. *Hybocystis* is found in Upper Siam, *Pterocyclus* (*Rhiostoma*) in Siam, Cambodia and Cochin-China, *Raphaulus* in Penang and Borneo, one species, presenting some distinctions of no generic value but distinguished as *Streptaulus* being found in the Eastern Himalayas.

Leaving apart this very marked assemblage of species the molluscan fauna of Tenasserim is, on the whole, closely allied to that of Siam and the Malay Peninsula and has numerous connections with the forms existing in the Malay Archipelago. The fauna of the Mergui Archipelago has not been sufficiently ascertained to justify any conclusions; it is probably very rich. There is a marked distinction between the species found in Tenasserim and those inhabiting other parts of Burma, the latter being allied to Assamese and Himalayan types for the most part, but in the Thayet district of Pegu, and still more in Upper Burma, a very different association of forms is found, having some alliances with the species found in the Peninsula of India and also some forms allied to Central Asiatic and Chinese types. There are thus at least four well marked molluscan faunæ found in Burma, and it may perhaps be useful to notice some of the most characteristic species. The provinces are the following:—

I.—Arakan and Southern Pegu.—*Pomatias peguensis*, *Pterocyclus parvus*, *Alycæus ingrami* and allies, *A. politus* and allies, *A. polygonoma*, *Pupina artata*, *Helicina arakanensis*, *Streptaxis burmanicus*, *Helicarion gigas*, *Sesara mamillaris*, *S. heliciferа*, *Nanina textrina*, *Trochomorpha castra*, *Plectopylis plectostoma*, *P. karenorum*, *Helix delibrata*, *Amphidromus sinensis*, *Glessula pertenuis*, *G. gemma*, *G. peguensis*, *Clausilia fusiformis*, *C. arakana*, *C. theobaldi*.

II.—Upper Burma and Thayet district.—*Helix similaris*, *H. scalpturita*, *H. bolus* and allies, *H. capitium*, *H. tapeina* and allies, *Nanina pansa*, *Hypselostoma tubiferum*, *Pupa insularis*, *P. cœnopicta* (the last two species not found in Pegu).

III.—Limestone hills near Maulmain.—*Acmella hyalina, Cyclophorus calyx, Pterocyclus ater, Rhiostoma haughtoni, Alycæus amphora, Diplommatina crispata, Hybocystis gravida, Raphaulus chrysalis, Georissa nawesiana, &c., Streptaxis petiti, S. bombax* and several other species. *Ennea cylindrelloidea, Vitrinopsis ataranensis, Sophina,* several species, *Sesara infrendens* and allies, *S. pylaica, Plectopylis achatina, P. cyclaspis, Hypselostoma dayanum, Clausilia (Oospira) philippiana* and allies, *C. insignis.*

IV.—Tenasserim.—*Cyclophorus expansus, Alycæus pyramidalis, Megalomastoma sectilabrum, Pupina arula, Helicina merguiensis, Ariophanta retrorsa, Macrochlamys resplendens, Nanina artificiosa, Sitala arx, Hemiplecta saturnia, Helix merguiensis, H. bifoveata, Amphidromus atricallosus, A. janus, &c.*

A few of the above range into other districts and of course no exact line of boundary can be drawn between different regions. The fauna of Upper Burma is comparatively poor, unless the land shells of the hills be added, and it is not certain whether these do not belong to another distinct province or sub-region.

LAND SHELLS OF BRITISH BURMA.

Class—GASTEROPODA.

Order—PROSOBRANCHIATA.

Sub-order—*TÆNIOGLOSSA.*

Family—**Rissoidæ.**

1 Acmella hyalina : Theob. et Stol. ... Maulmain.
2 Truncatella valida : Pfeif. ; var. ... Arakan (perhaps littoral or estuarine rather than a land-mollusk).

Family—**Pomatiasidæ.**

3 Pomatias peguensis : Theob. ... Pegu, Arakan.

Family—**Cyclophorinæ.**

Sub-Family—*Cyclophorinæ.*

4 Cyclophorus balteatus : Benson ... Pegu.
5 ———— aurantiacus : Schm. ... Pegu, Martaban.
6 ———— pernobilis : Gould ... Tenasserim.
7 ———— theobaldianus : Bens. ... Arakan, Pegu, Maulmain.
8 ———— speciosus : Phil. ... Pegu, Tenasserim.

9 Cyclophorus expansus : Pf. ... Tenasserim.
10 ———— haughtoni : Theob. ... Maulmain.
11 ———— affinis : Theob. ... Martaban.
12 ———— fulguratus : Pf. ... Pegu.
13 ———— patens : W. Bl. ... Pegu.
14 ———— pearsoni : Bens. ; var. ... Arakan hills.
15 ———— scurra : Bens. ... Arakan hills, Pegu.
16 ———— flavilabris : Bens. (C. arthriticus : Theob.) ... Pegu.
17 ———— porphyriticus : Bens. ... Tenasserim.
18 ———— (Scabrina) calyx, Bens. Maulmain.
19 ———— (S.) inglisianus : Stol. ... Maulmain.
20 Pterocyclus ater : Stol. ... Maulmain.
21 ———— feddeni : W. Blanf. ... Pegu.
22 ———— parvus : Pearson ; var.... Arakan.
23 ———— pullatus : Bens. ... Pegu.
24 ———— cetra : Bens. ... Maulmain.
25 ———— (Rhiostoma) haughtoni : Bens. ... Maulmain.
26 ———— (Spiraculum) gordoni : Bens. ... Maulmain, Toung-ngoo.
27 Leptopoma aspirans : Bens. ... Pegu, Tenasserim.
28 Lagocheilus scissimargo : Bens. ... Tenasserim.
29 ———— tomotrema : Bens. ; var. Arakan.
30 ———— leporinus : W. Blanf. ... Pegu.

Family—**Diplommatinidæ.**

31 Alycæus umbonalis : Bens. ... Pegu, Arakan.
32 ——— ingrami : W. Blanf. ... Arakan.
33 ——— glaber : W. Blanf. ... Arakan.
34 ——— politus : W. Blanf. ... Arakan.
35 ——— sculptilis : Bens. ... Pegu.
36 ——— kurzianus : Theob. et Stol ... Pegu.
37 ——— armillatus : Bens. ... Pegu.
38 ——— avæ : W. Blanf. ... Pegu, Arakan.
39 ——— polygonoma : W. Blanf. ... Arakan.
40 ——— richthofeni : W. Blanf. ... Maulmain.
41 ——— netidus : W. Blanf. ... Arakan.
42 ——— feddenianus : Theob. ... Maulmain.
43 ——— pyramidalis : Bens. ... Tenasserim.
44 ——— crispatus : God. Aust. ; var... Pegu, Maulmain.
45 ——— graphicus : W. Blanf. ... Pegu.
46 ——— humilis : W. Blanf. ... Arakan, Pegu.
47 ——— succineus : W. Blanf. ... Arakan hills.
48 ——— urnula : Bens. ; var. ... Martaban.
49 ——— vestitus : W. Blanf. ... Arakan hills.
50 ——— otiphorus : Bens. ... Pegu. . .
51 ——— amphora : Bens. ... Maulmain.
52 Diplommatina carneola : Stol. ... Maulmain.
53 ———— sperata : W. Blanf. ... Arakan.

54 Diplommatina nana : W. Blanf. ; var. Maulmain, Pegu.
55 ——————— richthofeni : Theob. et Stol. ... Maulmain.
56 ——————— ungulata : Theob. et Stol. ... Maulmain.
57 ——————— polypleuris : Bens. ... Arakan, Maulmain.
58 ——————— oligopleuris, W. Blanf.; var. ... Arakan.
59 ——————— exilis, W. Blanf. ... Maulmain.
60 ——————— (Palaina) crispata : Stol. ... Maulmain.
61 Clostophis sankeyi : Bens. ... Maulmain.

Family—**Pupinidæ.**

62 Megalomastoma sectilabrum : Gould Tenasserim.
63 Hybocystis gravida : Bens. ... Maulmain.
64 Pupina artata : Bens. ... Maulmain, Pegu, Arakan.
65 ——— peguensis : Bens. ... Pegu.
66 ——— arula : Bens. ... Tenasserim.
67 Raphaulus chrysalis : Pf. ... Maulmain.
68 ———— pachysiphon : Theob. et Stol. ... Maulmain.

Sub-order—*RHIPIDOGLOSSA.*

Family—**Helicinidæ.**

69 Helicina merguiensis : Pf. ... Mergui.
70 ——— arakanensis, W. Blanf. ... Arakan, Pegu.
71 Hydrocena (Georissa) pyxis : Bens. ... Pegu.
72 ———— (————) fraterna : Theob. et Stol. ... Martaban.
73 ———— (————) blanfordiana : Stol. ... Maulmain.
74 ———— (————) rawesiana : Bens. ... Maulmain.
75 ———— (————) illex : Bens. ... Tenasserim.
76 ———— (————) liratula : Stol. Maulmain.

Class—PULMONATA.

Family—**Testacellidæ.**

77 Streptaxis blanfordi : Theobald ... Pegu, Arakan.
78 ———— burmanicus : W. Blanf. ... Pegu, Arakan.
79 ———— petiti : Gould ... Tenasserim.
80 ———— obtusus : Stol. ... Maulmain.
81 ———— bombax : Bens. ... Do.
82 ———— solidulus : Stol. ... Do.
83 ———— sankeyi : Bens. ... Do.
84 ———— exacutus : Gould ... Tenasserim, Martaban.
85 ———— hanleyanus : Stol. ... Maulmain.

86	Streptaxis elisa : Gould	... Mergui Archipelago.
87	Ennea bicolor : Hutton	... Burma generally.
88	—— cylindrelloidea : Stol.	... Maulmain.

Family.—**Helicidæ.**

89	Limax viridis : Theob.	... Pegu.
90	Helicarion birmanicus : Phil.	... Tenasserim.
91	——— peguensis : Theob.	... Pegu ; Tenasserim.
92	——— præstans : Gould.	... Maulmain, Tenasserim.
93	——— gigas : Bens.	... Arakan.
94	——— venustus : Theob.	... Martaban.
95	Vitrinopsis ataranensis : Theob.	... Do.
96	Ariophanta retrorsa : Gould	... Tenasserim.
97	Macrochlamys resplendens : Phil	... Do.
98	——— indica : Bens. ; var.	... Pegu.
99	——— acerra : Bens.	... Tenasserim.
100	——— consepta : Bens.	... Pegu.
101	——— nebulosa : W. Blanf.	... Do.
102	——— aspides : Bens.	... Tenasserim.
103	——— petasus : Bens.	... Do.
104	——— compluvialis : W. Bl	... Arakan.
105	——— convallata : Bens.	... Tenasserim.
106	——— cycloidea : Alleers	... Maulmain.
107	——— honesta : Gould.	... Burma generally.
108	——— ramriensis : W. Blanf.	... Arakan.
102	——— kumahensis : Theob. et Stol.	... Do.
110	——— cassidula : Bens.	... Maulmain.
111	——— caussia : Bens.	... Tenasserim.
112	——— levicula : Bens.	... Do., Pegu.
113	——— poongi : Theob.	... Maulmain.
114	——— molecula : Bens.	... Pegu, Tenasserim.
115	——— pauxillula : Bens.	... Thayetmyo.
116	——— hypoleuca : W. Bl.	... Pegu.
117	——— perpaula : Bens	... Arakan, Pegu, Maulmain.
118	Nanina pansa : Bens.	... Pegu.
119	—— artificiosa : Bens.	... Tenasserim.
120	—— anceps : Gould	... Do., Maulmain.
121	—— uter : Theob.	... Pegu.
122	—— gordoniæ : Bens.	... Maulmain.
123	—— chinacterica : Bens.	... Pegu, Arakan.
124	—— textrina : Bens.	... Do.
125	—— barrakporensis : Pf.	... Pegu.
126	—— bascunda : Bens.	... Arakan, Pegu.
127	Sitala attegia : Bens.	... Pegu, Maulmain.
128	—— infula : Bens.	... Arakan, Pegu, Maulmain.
129	—— gratulator : W. Blanf.	... Pegu.
130	—— liricincta : Stol.	... Maulmain.
131	—— arx : Bens.	... Tenasserim.
132	—— confinis : W. Blanf.	... Pegu.
133	—— conula : W. Blanf.	... Arakan.

134 Hemiplecta saturnia : Gould ... Tenasserim.
135 Sophina schistostelis : Bens. ... Pegu, Maulmain.
136 ——— calias : Bens. ... Maulmain.
137 ——— conjungens : Stol. ... Do.
138 ——— forabilis : Bens. ... Do.
139 Sesara infrendens : Gould ... Do.
140 ——— capessens : Bens. ... Maulmain, Tavoy.
141 ——— pylaica : Bens. ... Maulmain.
142 ——— hungerfordiana : Theob. ... Martaban.
143 ——— inermis : Theob. ... Maulmain.
144 ——— ataranensis : Theob. ... Martaban.
145 ——— mamillaris : W. Blanf. ... Pegu.
146 ——— helicifera : W. Blanf. ... Do.
147 ——— basseinensis : W. Blanf. ... Do.
148 ——— diplodon : Bens. ... Do.
149 Trochomorpha castra : Bens. ... Arakan, Pegu.
150 Plectopylis achatina : Gray ... Maulmain.
151 ——— dextrorsa : God. Aust. ... Tenasserim.
152 ——— refuga : Gould ... Pegu, Tenasserim.
153 ——— plectostoma : Bens. ... Arakan, Pegu.
154 ——— shanensis : Stol. ... Pegu.
155 ——— feddeni : W. Blanf. ... Do.
156 ——— repercussa : Gould ... Maulmain, Tenasserim.
157 ——— brachyplecta : Bens. ... Near Maulmain.
158 ——— anguina : Gould ... Maulmain, Tenasserim.
159 ——— cyclaspis : Bens. ... Maulmain.
160 ——— karenorum : W. Blanf. ... Pegu.
161 Helix (Plectotropis) oldhami : Bens... Do.
162 —— (———) arakanensis : Theob. ... Pegu, Arakan.
163 —— (———) tapeina : Bens. ; var. ... Pegu.
164 —— (Ganesella) capitium : Bens., var. H. hariola, Bens. ... Do.
165 —— (Planispira) gabata : Gould. ... Maulmain, Tenasserim.
166 —— (———) delibrata : Bens.... Arakan, Pegu, Maulmain.
167 —— (———) merguiensis : Phil.. Tenasserim.
168 —— (———) peguensis : Bens.... Pegu.
169 —— (———) scenoma : Bens. ... Maulmain.
170 —— (———) scalpturita : Bens.. Pegu.
171 —— (———) zooraster : Theob... Do.
172 —— (———) similaris : Fer. ... Do.
173 —— (———) pilidion : Bens. ... Pegu, Tenasserim.
174 —— (———) bolus : Bens. ... Pegu.
175 —— (Chloritis) bifoveata : Bens. ... Tenasserim.
176 Amphidromus atricallosus : Gould ... Tenasserim.
177 ——— jonus : Pf. ... Do.
178 ——— lepidus : Gould ... Mergui Archipelago.
179 ——— moniliferus : Gould ... Tenasserim.
180 ——— schomburghi : Pf. ; var Do.
181 ——— sinensis : Bens. ... Arakan, Pegu, Martaban.

182 Stenogyra (Opeas) gracilis ; Hutton... Burma generally.
183 Glessula pertenuis : W. Blanf. ... Arakan, Pegu.
184 ——— tenuispira : Bens. ... Pegu.
185 ——— gemma : Bens. ... Arakan.
186 ——— peguensis : W. Blanf. ... Pegu.
187 Hapalus pusillus : W. Blanf. ... Do.
188 ——— scrobiculatus : W. Blanf. ... Do.
189 ——— putus : Bens. ... Do.
190 ——— plicifer : W. Blanf. ... Do.
191 Pupa (Pupisoma) lignicola : Stol. ... Maulmain.
192 —— (Vertigo) filosa : Theob. et Stol. Arakan.
183 Hypselostoma tubiferum : Bens. ... Pegu.
194 ——————— dayanum : Stol. ... Maulmain.
195 Clausilia (Phœdusa) arakana : Theob. Arakan.
196 ——— fusiformis : W. Blanf. ... Arakan, Pegu.
197 ——— insignis : Gould ... Maulmain.
198 ——— gouldiana : Pf. ... Maulmain, Tenasserim.
199 Clausilia (Phœdusa) theobaldi : W. Blanf. ... Pegu.
200 ——— (Oospira) philippiana : Pf. ... Maulmain.
201 ——— ——— vespa : Gould. ... Tenasserim.
202 ——— ——— ovata : W. Blanf.. Maulmain.
203 ——— (Nænia) masoni : Theob. ... Toung-ngoo.

Family.—**Veronicellidæ.**

204 Veronicella burmanorum : Theob. ... Pegu.

Family—**Succineidæ.**

205 Succinea semiserica : Gould ... Pegu, Tenasserim.
206 ——— plicata : W. Blanf. ... Arakan.

The fresh-water shells are much less numerous in species than the land shells ; they comprise both univalves and bivalves (*Lamellibranchiata*) and the univalves include representatives of the Prosobranchiate *Gasteropoda* allied to terrestrial forms such as *Cyclophorus*, and *Pulmonata* allied to *Helix*. Of the Prosobranchiata there are representatives of several families.

The affinities of the small shell called *Brotia* are not clearly made out. It was originally described as a *Melania*, and is a turrited, thick, costulated shell with the mouth produced into a channel below. It is a matter of doubt whether this species really belongs to the marine and estuarine family *Cerithiidæ*.

The *Melaniidæ* comprise two genera, *Paludomus*, an ovately conical or globosely conical shell, and *Melania*, a turrited form. Both are extremely abundant in all streams and marshes in Burma.

The shell classed as *Lithoglyphus* again is of doubtful affinity, the other species of the genus being European. The shell is shaped like a periwinkle and is thick with a conical spire.

The genus *Ampullaria* consists of globose shells, often of large size, two or three inches in diameter, with a thick shelly operculum. *Paludina* comprises comparatively thin shells as a rule, ovately conical and not unlike *Paludomus*. The latter, however, is thicker, the left or columellar margin of the aperture always being thicker than the outer, and flattened; the operculum is oval and the nucleus excentric. *Paludina* is generally thinner, the columellar margin of the aperture is not thickened and the operculum is very thin with a concentric nucleus. *Paludina crassa* is, however, as thick as a *Paludomus*. *Bythinia* is a small turrited or conical shell with a shelly operculum; the species referred to the genus under the name of *B. cincta* is a minute species of uncertain affinities.

The *Pulmonata* of the Burmese marshes and rivers are certainly much more numerous than they are represented as being in the accompanying list. *Lymnæa* is a very thin horny sub-ovate shell with a short spire and a large mouth; *Planorbis* a closely coiled discoid shell.

The bivalves or Lamellibranchiate forms include two families. The *Cyrenidæ* are mostly estuarine, the fresh-water genus *Corbicula* consisting of small rounded shells, somewhat of the form of a cockle, usually purple inside, but not pearly. The *Unionidæ* or fresh-water mussels are pearly inside; some are of very large size: two genera occur in Burma, *Unio* proper with the teeth, by means of which the two valves interlock, consisting of small hinge or cardinal teeth, sometimes very minute but generally well marked, close to the points or umbones of the valves and elongate lamellar lateral teeth, running for some distance along the margins of the shells near the umbones, and *Monocondylæa* with one large rounded obtuse tooth in each valve. The latter is a South American form not found in India but the Burmese shells are by some writers considered to belong to a different genus from the American.

All the Burmese fresh-water shells are similar to those found in Siam and other neighbouring countries. The fauna is much richer than that of the Peninsula of India.

FRESH-WATER MOLLUSCA OF BRITISH BURMA.

Class—GASTEROPODA.

Order—PROSOBRONCHIATA.

Sub-order—*TŒNIOGLOSSA*.

Family—**Cerithiidae**.

1 Brotia pagodula: Gould ... Thoung-yeng river, an affluent of the Salween.

Family—**Melaniidæ.**

2 Paludomus labiosa : Bens. ... Tenasserim river.
3 ——— ornata : Bens. ... Pegu.
4 ——— regulata : Bens. ... Do.
5 ——— andersoniana : Nev. ; var. ... Do.
6 Melania baccata : Gould ... Thoung-yeng river, Yoon-za-leng.
7 ——— balteata : Reeve ... Pegu.
8 ——— batana : Gould ... Tenasserim river.
9 ——— corrugata : Lane ... Tavoy.
10 ——— fluctuosa : Gould ... Do.
11 ——— gloriosa : Anthony ... Pegu.
12 ——— hainesiana : Lea ... Do.
13 ——— humerosa : Gould ... Do.
14 ——— herculea : Gould ... Tavoy.
15 ——— jugicostis : Bens ... Tenasserim.
16 ——— lineata : Gray ... Pegu, Tenasserim.
17 ——— peguensis : Anthony ... Pegu.
18 ——— præmordica : Tryon. ... Martaban.
19 ——— reevei : Brot. ... Pegu.
20 ——— scabra : Müll. ... Do.
21 ——— thiarella : Lam. ... Do.
22 ——— tuberculata : Müll. ... Burma generally.
23 ——— variabilis : Bens. ... Do.

Family—**Littorinidæ.**

24 Lithoglyphus martabanensis : Theob., Martaban.

Family—**Ampullaridæ.**

25 Ampullaria mœsta : Reeve, (A. Theobaldi : Hanley) ... Martaban.
26 ——— conica : Gray (A. paludinoides : Phil.) ... Burma generally.
27 ——— aperta : Phil, (A. saxea : Reeve). ... Arakan, Pegu.

Family—**Paludinidæ.**

28 Paludina bengalensis : Lam. ; var. (P. doliaris ; Gould) ... Pegu, Maulmain.
29 ——— crassa : Hutton ; var. ... Pegu.
30 ——— dissimilis : Müll., var (P. heliciformis, var., Pf.) ... Pegu.

Family—**Rissoidæ.**

31 Bythinia iravadica : W. Blanf. ... Pegu.
32 ——— cerameopoma : Bens. ... Maulmain.
33 ——— pulchella : Bens. ... Do.
34 ——— cincta : Gould ... Tenasserim.

Class—PULMONATA.

Family—Limnæidæ.

35	Limnæa lutcola : Lam.	... Pegu.
36	——— rupescens : Gray	... Do.
37	Planorbis exustus : Desh.	... Do.

Class—LAMELLIBRANCHIATA.

Family.—Cyrenidæ.

38	Corbicula gracilis : Prime	... Tenasserim river.

Family—Unionidæ.

39	Unio marginalis : Lam.	... Burma generally.
40	—— obesa : Hanley et Theobald	... Tonghu.
41	—— corrianus : Lea	... Pegu.
42	—— lamellatus : Lea	... Do.
43	—— generosus : Gould	... Tenasserim Pegu.
44	—— scutum : Benson	... Tenasserim river.
45	—— luteus : Lea	... Tavoy.
46	—— tavoyensis : Gould.	... Tavoy, Pegu.
47	—— bhamoensis : Theob	... Pegu.
48	—— cœruleus : Lea	... Do.
49	—— bonneaudi : Eyd. et Soul	...
50	—— crispatus : Gould	... Tavoy.
51	—— crispisulcatus : Bens.	... Pegu.
52	—— pugio : Bens.	... Do.
53	—— foliaceus : Gould	... Pegu, Tavoy.
54	—— exolescens : Gould	... Tavoy.
55	—— (Monocondylæa) crebristriatum : Anthony	... Pegu.
56	—— (————) inoscularis : Gould	... Pegu, Salween river.
57	—— (————) salweniana : Gould	... Do. do.

The following list of the mollusca inhabiting the creeks and salt swamps of the Burmese estuaries is, doubtless, very imperfect, especially in the list of bivalves. For instance several forms of boring shells allied to *Teredo* or the ship-worm abound in the salt-water creeks but only one form has been determined. As a rule, to which there are, however, a few exceptions, the estuarine forms are not found on the sea coast, but some species are met with on the shores of the sea in muddy places. The forms enumerated might be again sub-divided into those living in fresh or slightly brackish water but not exceeding beyond the influence of the tide, and those found in salter water nearer to the sea. Some are peculiar to mangrove swamps, others to mud flats exposed at low water,

others are only found where stones or rocks occur. It would take too much space to enter into all these details, and it is unnecessary to do more than give a list of species.

ESTUARINE SHELLS.

Class—GASTEROPODA.

Order—PROSOBRONCHIATA.

Family—**Buccinidæ.**

1 Nassa planicostata : A. Adams ... Irrawaddy delta.
2 Purpura bitubercularis : Lam. ... Do.

Family—**Mitridæ.**

3 Columbella ducloziana : Sow. ... Irrawaddy delta and Arakan.

Family—**Scalariidæ.**

4 Scalaria sp. ... Irrawaddy delta.

Family—**Cerithiidæ.**

5 Cerithium (Vertagus) obeliscus : Born. ... Irrawaddy delta.
6 Tympanotonus alatus : Phil. ... Burmese estuaries generally.
7 ——— euriptera : A. Ad. ... Do. do.
8 Telescopium fuscum : Chem. ... Do. do.
9 Cerithidea sp : (probably C. obtusa, and one or two other species) ...

Family—**Littorinidæ.**

10 Littorina melanostoma : Gray ... Burmese estuaries generally.
11 ——— scabra : L. ... Do. do.
12 ——— zic-zac : Chem. ... Estuaries and coasts.

Family—**Rissoidæ.**

13 Assiminea francesiæ : Gray ... Irrawaddy delta.
14 ——— rubella : W. Blanf. ... Do. do.
15 Iravadia ornata : W. Blanf. ... Do. do.
16 Stenothyra monilifera : Bens. ... Pegu, Mergui.
17 ——— puncticulata : Gould ... Tavoy.

Family—**Paludinidæ.**

18 Larina burmana : W. Blanf. ... Irrawaddy delta.

Family—**Neritidæ.**

19 Neritina articulata : Gould ... Tavoy.
20 ——— bengalensis : Chem. ... Arakan and Pegu.
21 ——— reticularis : Sow. ... Estuaries of Burma generally.

22 Neritina obtusa : Bens. ... Irrawaddy delta.
23 ——— smithii : Gray ... Do. do.
24 ——— depressa : Bens. ... Do. do.
25 ——— crepidularia : Lam. ... Do. do.
26 ——— cornucopiæ : Bens. ... Do. do.
27 Navicella sp. ... Do. do.

Family—**Patellidæ.**

28 Tectura fluviatilis : W. Blanf. ... Irrawaddy delta.

Order—OPISTHOBRANCHIATA.

Family—**Bullidæ.**

29 Haminea tenera : A. Ad. ... Irrawaddy delta.

Class—PULMONATA.

Family—**Onchidiidæ.**

30 Onchidium pallidum : Stol. ... Pegu.
31 ——— tenerum : Stol. ... Do.
32 ——— tigrinum : Stol. ... Do.

Family—**Auriculidæ.**

33 Melampus fasciatus : Desh. ... Arakan coast.
34 ——— (Persa) melanostoma : Garr. ; var. ... Burmese coast.
35 Pythia plicata : Fer. ... Irrawaddy delta and Salween.
36 ——— trigona : Trosch. ... Do. delta.
37 ——— ovata : Pfr. ... Arakan coast.
38 Plecotrema cumingiana : W. Blanf., Irrawaddy delta.
39 Cassidula nucleus : Martyn. ... Arakan coast.
40 ——— aurisfelis : Beng. ... Do. do.
41 ——— labrella : Desh. ... Do. do.
42 Auricula aurisjudæ. ... Do. do. and Irrawaddy delta.
43 ——— gangetica : Bens. ... Irrawaddy delta.
44 ——— pusilla : H. and A. Adams, Arakan.

Family—**Amphibolidæ.**

45 Amphibola (Ampullarina) burmana : W. Blanf. ... Irrawaddy delta.

Class—LAMELLIBRANCHIATA.

Family—**Pholadidæ.**

46 Martesia fluminalis : W. Blanf. ... Irrawaddy delta.
47 Calobates thoracites : Gould ... Tavoy.

Family—**Solenidæ**.

48 Novaculina gangetica : Bens. ... Pegu, Tenasserim.

Family—**Corbulidæ**.

49 Sphenia perversa : W. Blanf. ... Irrawaddy delta.

Family—**Tellinidæ**.

50 Sanguinolaria diphos : L. ... Burmese estuaries generally.
51 Macoma ala : Hanley ... Do. do.
52 Scrobicularia angulata : Chem. ... Do. do.

Family—**Veneridæ**.

53 Chione ceylonensis : Sow. ... Irrawaddy delta.

Family—**Cyrenidæ**.

54 Cyrena bengalensis : Sow. ... Burmese estuaries generally.

Family—**Mytilidæ**.

55 Mytilus smaragdinus : Chem. ... Burmese estuaries.
56 Modisla emarginata : Bens. ... Do.

Family—**Arcidæ**.

57 Area granosa : L. ... Irrawaddy delta.
58 Scaphula pinna : Bens. ... Tenasserim.
59 ——— deltæ : W. Blanf. ... Irrawaddy delta.

Family—**Anomiadæ**.

60 Ænigma ænigmatica ; Chem. ... Irrawaddy delta.
61 Anomia sp.

Family—**Ostreidæ**.

62, 63 Ostrea : 2 sp. ... Burmese estuaries generally.

INDEX.

Page.

A.

ABHI-RA-ZA. Abandons Ka-pee-la-vas-tu and founds Tagoung ... 236
Ablabes bistrigatus 622
——— collaris 623
——— scriptus 622
Acacia catechu ... ... 128—134
——— farnesiana 134
Acanthophthalmus pangia 691
Acanthopsis choirorrhyncus ... ... ib.
Acanthosaura 619
——— armata ... ... ib.
Adenanthera pavonina 137
Administration. Burmese, before British occupation 477
——— Educational, ... 527
——— Forest 113
——— Judicial, ... 497
——— Legislative, ... 496
——— Municipal, ... 493
——— Police, ... 502
——— Post Office, ... 521
——— Prison, ... 511
——— Public Works, ... 514
——— Telegraph, ... 520
——— of Arakan. Account of, from British occupation to formation of the Province 479
——— of Pegu do. do. do. ... 485
——— of Tenasserim do. do. do. ... 482
Agamidæ 618
Agriculture 423
Agricultural stock 431
Ailanthus malabaricus 133
Akyab. Outbreaks in, ... 480
Alaudidæ ... ... 580—596
Albizzia jiringa 135
——— lebbek ... ... 128—135
——— stipulata 128
Alcedinidæ ... ... 581—599
Alguada Reef Light-house 517
Allied Leaf-bat 544
Alluvial mixed forest 84
Alluvium 44
Alompra ... *See Aloung-bhoora.*
Aloung-bhoora. Assumption of title by, ... 299
——— completes the conquest of Pegu and founds modern Rangoon 300
——— Death of, ... 307
——— Invasion of Manipur by, ... 305
——— ——— of Siam by, ... 306
——— Peguans driven out of Burma by, ... 297
——— Reception of Captain Baker by, ... 301
——— Reception of Ensign Lister by, ... 304
——— Rise of, ... 297
Aloung-tsee-thoo. Accession of, ... 241
——— invades Arakan ... ... ib.
Altingia excelsa ... ... 129—135

Page.

Alves, Captain. Mission of, to Noung-daw-gyee, King of Burma ... 308
Amarapoora. Burman capital removed to, ... 314
Ambassis baculis 650
——— gymnocephalus ... ... ib.
——— nalua ... ... ib.
——— nama 649
——— ranga 650
Amblyceps mangois 680
Amblypharyngodon atkinsonii 685
——— mola ... ... ib.
Amphibolidæ 715
Amphipnous cuchia 694
Ampullaridæ 712
Amusements of Burmese 389
An. (District) Formation of the, ... 480
——— united to Ramree 482
——— River 15
Anacardium occidentale ... ... 131—136
Anabas scandens 670
Anan-bho 130
Anan-ma ... ... ib.
A-na-raw-hta-meng-tsaw. Accession of, ... 240
——— Capture of Tha-htoon by, ... ib.
——— Invasion of Arakan by, ... ib.
——— ——— of China by, ... ib.
——— ——— of Pegu by, ... ib.
Anatidæ ... ... 585—608
Anglo-Burmese War. First. Causes of, ... 328
——— ——— Close of, ... 342
——— ——— Commencement of, ... 329
——— ——— Proclamation of, ... 330
——— Second. Causes of, ... 354
——— ——— Close of, ... 372
——— ——— Commencement of, ... 363
Anguilla bengalensis 695
Anogeissus acuminata 129
Anomiadæ 716
Anoo 186
Ant-eater. Scaly, ... 568
Antennarius hispidus 661
——— marmoratus ... ... ib.
——— nummifer ... ... ib.
Antiaris toxicaria 135
Antimony 65
Ant-thrushes ... ... 576—588
Aonyx leptonyx 552
Apocryptes batoides 664
——— lanceolatus ... ... ib.
Aporosa villosa... 135
Apua fusca 691
Arakan. Administration of, ... 479
——— Conquest of, by Burmans 315
——— History of, to the close of the thirteenth Century 248
——— Invasion of, by British 335
Arakan group of rocks 35
Arakan Roma Mountains 6
Arakan. (Town). Capture of, by the British 335
Arakanese race... 150
——— Invasions of Bengal by, ... 294
Arcidæ 716
Arctitis binturong 550

Page.
Arctonyx collaris 553
——— taxoides ... ... ib.
Ardeidæ ... ... 585—602
Arenga saccharifera 140
Arius acutirostris 675
——— æquibarbis ... ... ib.
——— buchanani 676
——— burmanicus 675
——— cælatus ... ... ib.
——— gagora 676
——— jatius ... ... ib.
——— sona 675
——— venosus ... ... ib.
Artamidæ ... ... 577—590
Artocarpus integrifolia 138
——— lacoocha ... ... ib.
Asellia stoliczkana 545
Aspidoparia morar 688
Assam. Operations in, during first Anglo-Burmese War 329
Assembly. Religious, ... 207
A-theng-kha-ya (son of Thaing-kha-bo) poisoned... 255
——— (son of Thee-ha-thoo) becomes independent ... ib.
Atretium schistosum 625
Attaran 29
Auriculidæ 715
Ava. Capital of Burma ... ... 257—309
——— Foundation of, ... 257
Axials 35

B.

Baboons 539
Badis buchanani 658
Badgers 552
Bagarius yarrelii 680
Baker. Captain. Mission of, to Aloung-bhoora... 301
Balachong 417
Balænoptera indica 556
Balænopteridæ ... ... ib.
Ball. Game of, ... 394
Bamboo forests 95
——— rat. Bay, ... 568
——— Short-tailed, ... 562
——— Sumatran, ... ib.
Band fish 654
Bandicoot 561
Bandoola. [The First], commands in Arakan 331
——— ——— in Assam 328
——— ——— Death of, ... 337
——— ——— defends Donabyoo ... ... ib.
——— [The Second], appointed to the command of the Burmese Army 368
——— ——— entrenched at Ra-thai-myo 370
——— ——— Surrender of, ... ib.
Barbets ... ... 580—598
Barbus apogon 686
——— blythii ... ... ib.
——— burmanicus ... ... ib.
——— chola ... ... ib.
——— goniosoma 685
——— macrolepidotus 686
——— phutunio 687
——— puntio ... ... ib.

Page.
Barbus sarana 685
——— stevensonii 686
——— stigma 687
——— stoliczkanus 686
——— stracheyi 685
——— unimaculatus 687
Barking deer 565
Barilius bola 688
——— guttatus ... ... ib.
Barringtonia acutangula 187
Bassein. Capture of, by British ... ... 337—366
——— River 22
Bat. Allied Leaf, ... 544
—— Beautiful, ... 546
—— Black-bearded, ... 543
—— Common Yellow, ... 545
—— Large Horse-shoe, ... 544
—— Large Leaf, ... ib.
—— Long-armed, ... 543
—— Long-nosed Leaf, ... 544
—— Orange, ... 546
—— Painted, ... ib.
—— Plaintain, ... ib.
—— Rugous Leaf, ... 544
—— Vampire, ... ib.
Batagur affinis... 609
——— kachuga 608
——— trivittata 609
Bataguridæ 608
Batrachia apoda 640
——— gradicutia 639
——— salicutia 636
Batrachus gangene 660
Batrocephalus mino 676
Bats. Frugiverous, ... 541
—— Insectiverous, ... 543
Bauhinia racemosa 139
Bay-cat 551
Beach forest 88
Bears 553
Bear-cat. Black, ... 550
Beautiful bat 546
Bee-eaters ... ... 581—599
Bellia crassicollis 608
Belone cancila 681
——— strongylurus ... ... ib.
Benson, Colonel. Mission of, to Amarapoora 851
Berrya mollis 127
Betel-chewing 403
Bhan-bhwai ... ... 129—137
Bhe-da-rie, is married to Maha-tham-bha-wa 238
Bhee-leng River 27
Bheng-laing River 29
Bhien-daw-tsha-ra 398
Bhien-na-ka, driven from Tagoung by an irruption of Chinese ... 236
Bho-daw-bhoora. Accession of, ... 814
——————— Death of, ... 823
Bhoom-mai-za 128
Bhooreng-noung. Death of, ... 284
——————— succeeds his father as King of Pegu under the title of Tsheng-hpyoo-mya-sheng-meng-ta-ra-gyee ... 280

Page.
Bison 566
Bixa orellana 136
Black Bear-cat 550
Black-bearded bat 543
Black-capped Marten 552
Blumea balsamifera 135
Boats 436
Boat-races 391
Boehmeria hamiltoniana 140
——— malabarica 139
Boleophthalmus boddaerti... 665
——— pectinirostris ... ... ib.
——— viridis ... ... ib.
Bombay duck 681
Booddha. The, ... 205
Booddhist Commandments 201
——— Council, First 198
——— ——— Second... 199
——— ——— Third ... ... ib.
——— Monks 210
——— ——— Ceremony of admission of, ... 215
——— ——— Collection of food by, ... 228
——— ——— Education given by, ... ib.
——— ——— Funerals of, ... 232
——— ——— Humility required in, ... 225
——— ——— Occupations of, ... 228
——— ——— Poverty required in, ... 226
——— ——— Practice of confession amongst, ... 225
——— ——— Probationers or Sheng, ... 212
——— ——— Purity required in, ... 227
——— ——— Respect paid to, ... 232
——— ——— Temperance required in, ... 227
——— ——— visiting the sick 228
Bos arni 567
—— frontalis 566
—— gaurus ... ... ib.
—— sondaicus ... ... ib.
Botia berdmorei 690
—— histrionica ... ... ib.
Bovidæ 566
Boxes, gilt 420
Boxing matches 392
Brass-work 421
Bregmaceros atripinnis 671
Broad-bills ... ... 580—597
Brock-weasel 553
Brow-antlered deer 565
Brown Rat 561
Bruguiera gymnorrhiza 137
Bucerotidæ ... ... 582—600
Buccinidæ 714
Buffalo 567
—— fights 393
Buffaloes 431
Bufo asper 638
—— melanostictus ... ... ib.
Building stone 65
Bulbuls ... ... 576—589
—— Green, ... ib.—590
Bull-frog 636
Bullidæ 715

Page.
Bungarus cæruleus 638
——— fasciatus ... ... ib.
——— flaviceps ... ... ib.
Burman aggressions in Chittagong 328
——— race 141
Burmese doctors 398
——— language 147
Burney, Major. Appointed Resident in Burma... 346
——— ——— Leaves the Capital... 351
Bush babblers ... ... 576—588
Butcher birds ... ... 577—591
Butea frondosa 184
Bya-gnya-oo. Accession of, to the throne of Pegu 261
——— assumes title of Tsheng-hpyoo-sheng ... ... ib.
Bya-hmaing-tee, conquers Burma 294
——— put to death 312
Byoo 127

C.

Cachar. Invasion of, by Burmese 329
Calamoherpidæ ... ... 578—593
Calamaria siamensis 621
Callichrous bimaculatus 678
——— macrophthalmus ... ... ib.
——— pabo ... ... ib.
Callophis intestinalis 638
——— maculiceps ... ... ib.
——— trimaculatus ... ... ib.
Callula guttulata 638
——— pulchra... 637
Calotes emma 619
——— mystaceus ... ... ib.
——— versicolor ... ... ib.
Campephagidæ ... ... 577—591
Canidæ 547
Canis aureus ... ... ib.
——— rutilans ... ... ib.
Canning, Captain. Mission to Amarapoora 321
Cantoria dayana 626
Caouna olivacea 611
Capacity. Measures of, ... 406
Capricornis sumatrensis 566
Capridæ ... ... ib.
Caprimulgidæ ... ... 581—599
Carapa obovata 188
Carcharias gangeticus 696
Caretta squamata 611
Carnivora 547
Careya arborea... ... ... 129—137
Carps 682
Carts 486
Caryota sobolifera 140
——— urens ... ... ib.
Cassia fistula 137
Cat. Bay- 551
——— Black Bear- 550
——— Common Tree- 549
——— Common Viverette 548
——— Fire 551
——— Fishing Tiger- ... ... ib.
——— Grey Civet- 547

Page.
Cat. Hill Tree- 549
—— Large-spotted Civet- 548
—— Leopard- 551
—— Light-eared- 549
Cat-fishes 673
Catla buchanani 685
Cattle 431
Cattle-disease 432
Cedrela toona 127
Ceratorhinus crossii 567
———— sumatrensis 568
Cerbera odallam 131
Cerberus rhyncops 627
Cerithiidæ ... ... 711—714
Certhiidæ ... ... 580—596
Cervidæ 565
Cervulus aureus ... ... ib.
Cetacea 556
Chaca lophioides 678
Charadriidæ ... ... 584—601
Chastity required in Booddhist monks 227
Chatoessus chacunda 692
———— modestus ... ... ib.
Chætodon melanotus 652
———— pictus ... ... ib.
Cheduba. Capture of, by the British 332
Chela bacaila (*See Errata*) 690
—— clupeoides ... ... ib.
—— ———— sardinella ... ... ib.
—— ———— sladoni ... ... ib.
Chelonia 607
Chelonia virgata 611
Chelonidæ ... ... ib.
Chorsydrus granulatus 628
Chevanesia esculenta 124
Chevrotains 564
Chief foreign countries trading with British Burma 468
Child-bed. Treatment of women in, ... 377
Chinese. Invasions of Burma by, ... 243—270—292—310
Chiroptera 541
Chitra indica 609
Chitridæ ... ... ib.
Chittagong. Burmese aggressions in, ... 817—828
Choppers 421
Chorinemus lysan 657
Chrysopelea ornata 629
Chrysophrys berda 654
Ciconidæ ... ... 585—603
Cinchona 124
Cirrhina mrigala 684
Cistudinidæ 607
Cicca emblica 138
Civets 547
Clarias magur 679
Clays 65
Closed tropical forests 72
Clouded Leopard 550
Clupea lile 693
——— palasah ... ... ib.
——— variegata ... ... ib.
Coal ... ... 38—48—60

Page.
Coast line 2
Cochlospermum gossipium... 182
Cocos nucifera 140
Coffee 429
Collection of food by Booddhist monks 228
Colobidæ 540
Coluber nuthalli 623
Colubridæ 622
Colubrine snakes. Innocuous, ... 620
——— ——— Venomous, ... 632
Columbidæ ... ... 582—600
Commandments. Booddhist, ... 201
Commercial treaty with Burma. First, ... 343
——— Second, ... 474
——— Third, ... 475
Common Tree-cat 549
Compsosoma melanurum 623
——— radiatum ... ... ib.
Confession amongst Booddhist monks... 225
Copper 63
Coraciidæ ... ... 581—599
Corbulidæ 716
Cormorants ... ... 585—603
Cornarium bengalense 133
Corvidæ ... ... 579—595
Cottidæ 661
Cotton cleaning 411
——— cultivation 427
Council, Booddhist. First, ... 198
——— Second, ... 199
——— Third, ... ib.
Crab-eating monkey 539
Cranes ... ... 585—603
Crenidens forskällii 654
——— indicus ... ... ib.
Crocidura blythii 555
——— fuliginosa ... ... ib.
——— macrotis ... ... ib.
Crocodile fishes 661
Crocodilia 606
Crocodilidæ ... ... ib.
Crocodilus palustris ... ... ib.
——— pondicerianus ... ... ib.
——— porosus ... ... ib.
Crops cultivated 423
Crotalidæ 635
Crows ... ... 579—595
——— King ... ... 577—591
Crypteronia paniculata 130
Crystalline rocks ... ... 35—45
Cuckoos ... ... 581—598
Cuculidæ ... ... ib.—ib.
Cultivated lands. Vegetation of, ... 104
Cuora amboinensis 608
Cutch 415
——— forests 92
Cybium guttatum 660
——— lineolatum ... ... ib.
Cycas rumphii 136
——— siamensis ... ... ib.
Cyclemis dentata 608

BENGAL SECRETARIAT LIBRARY

INDEX.

Page.

Cyclophorinæ 705
Cylindrophis rufus 621
Cynoglossus brachyrhynchus 672
——— lida 673
——— sp. (bengalensis ?) 672
Cynonycteris amplexicaudata 542
Cynopterus marginatus 542
Cyrenidæ ... ... 718—716
Cypselidæ ... ... 581—599

D.

DABOIA RUSSELLII 634
Daggers 422
Dalbergia cultrata 134
Damp hill forests 77
Dangila berdmorei 684
——— burmanica ... ... ib.
Danio æquipinnatus 689
——— albolineatus ... ... ib.
——— dangila ... ... ib.
——— nigrofasciatus 690
——— spinosus... 689
Dan-tha-lwon ... ... 131—134
Daray 565
Datnioides polota 651
Days of the week 405
Da-za Ra-za founds old Pagan 236
De Brito y Nicote, appointed Governor of Syriam 290
——— attacked by kings of Arakan and Toung-ngoo ... ib.
——— ——— conquers Toung-ngoo 291
——— taken prisoner by Burmese and impaled ... ... ib.
Deciduous forests 79
Delphinidæ 556
Deer 565
—— Barking, ... ib.
—— Brow-antlered, ... ib.
—— Hog, ... ib.
Delphinus plumbeus 556
Dendrophis pictus 629
Dermatochelys coriacea 611
Deva Badree converts the king of Pegu 247
Dha 421
Dha-let 15
Dha-lwai 422
Dha-ma 421
Dha-meng 418
Dha-myoung 422
Dha-shay 421
Dhat-tsha-ra 398
Dicæidæ ... ... 578—594
Dicruridæ ... ... 577—591
Dillenia pentagyna 127
——— pulcherrima ... ... ib.
Dilophyrus grandis 618
Diplommatinidæ 706
Diplopelura berdmorei 637
——— carnaticum ... ... ib.
——— interlineatum ... ... ib.
Dipsas multimaculata 630
——— ochracea ... ... ib.
Dipterocarpus alatus ... ... 131—132

Page.
Dipterocarpus lævis ... ... 131—132
——— tuberculatus ... ... 125— ib.
——— turbinatus 181
Discognathus lamta 683
Diseases. Pincipal, ... 401
Distances. Manner of indicating, ... 406
Disturbances in Pegu after British occupation 486
Diurnal birds of prey ... ... 575—586
Dog. Jungle, ... 547
Dolphin 556
Donabyoo. Capture of, by British during first Anglo-Burmese war ... 337
Doora lake 31
Doryura berdmorei 617
——— gaudama ... ... ib.
——— karenorum ... ... ib.
Doung-lan-nee... 624
Doves 582
Draco maculatus 618
——— tæniopterus ... ... ib.
Dress of Burmese 402
Dry forests 91
Dry hill forests... 74
Dry mixed forests 91
Ducks ... ... 585—603
Dugong 568
Dusky-leaf monkey 540
Duties of a Pyit-tseng (or Rahan or monk) 218
Dwa-boot 139
Dwa-nee 127
Dwellings 403
Dwot-ta-boung founds Thare-khettra (Prome) 238
——— Gaudama's prophecy regarding, ... 237
Dwot-ta-ran. Accession of, ... 238
Dyeing 414

E.

Ear-boring 378
Ear-fringed Rhinoceros 567
Earth-oil 89
Echis carinata 635
Education given by Booddhist monks... 228
Eels 694
E-ka-rit 139
Elephantidæ 556
Elephant ... ... ib.
Elephas indicus ... ... ib.
Eliotris caperata 666
——— fusca 665
——— macrodon ... ... ib.
——— porocephalus ... ... ib.
——— scintillans 666
Embankments 518
Emyda scutata 611
Eng ... ... 125—132
——forest 80
——hill forest ... ... ib.
Eng-ma-lake 31
Eng-rai-gyee ... ... ib.
Engraulis purava 692
——— telara ... ... ib.
Eng-gyeng ... ... 126—132

Page.
Entering a monastery 378
Eonycteris spelæa 542
Epicrium glutinosum 640
Equula blochii... 658
——— edentula 657
——— ruconius 658
Erethistes conta 674
——— hara ... ... ib.
Erinaceidæ 554
Eriolæna candollei 127
Euprepes carinatus 613
——— macularius 614
Eurylæmidæ ... ... 580—597
Eutropiichthys vacha 679
Evergreen hill forests 74
Exostoma berdmorei 680
Exports by sea. Principal, ... 465
——— in 1877-78 ... ... ib.

F.

FAGRÆA FRAGRANS 130
Falconidæ ... ... 575—586
Falcons ... ... 575—586
Feast of lanterns 408
Felidæ 550
Felis chaus 551
—— macrocelis 550
—— pardus ... ... ib.
—— temminckii 551
—— tigris 550
—— undata 551
—— viverrina ... ... ib.
Ferania sieboldii 627
Feronia elephantum 133
Festivals 407
———at Pagodas 409
Ficus elastica 124
—— laccifera 136
Fin-back 556
Finches ... ... 579—595
First Anglo-Burmese war. Causes of, ... 328
——— Commencement of, ... 329
——— Conclusion of, ... 342
First Booddhist Council 198
Fire-cat 551
Fishing Tiger-cat ... ... ib.
Fish-paste ... ... 417—418
Flat-fish 671
Flat-heads 661
Flower-peckers ... ... 578—594
Fly-catchers ... ... 577—591
Flying-fish 682
Flying-fox 542
Flying Lemur 541
——— Squirrel. Hairy-footed, ... 557
Food. Collection of, by Booddhist Monks 228
——— Ordinary, of Burmans 404
Fordonia bicolor 626
Foreign countries trading with British Burma 468
Foreign trade in 1877-78 468
Forest Administration 113

Page.
Forest Bamboo, ... 95
——— Deciduous, ... 79
——————— Dry 91
——————— Cutch 92
——————— Hill ... ... ib.
——————— Mixed 91
——————— Mixed 84
——————— Alluvial ... ... ib.
——————— ——— Beach 88
——————— ——— Lower 85
——————— ——— Savannah 86
——————— Upper *or* Teak 88
——————— Open 79
——————— Eng *or* Laterite 80
——————— Hill Eng ... ... ib.
——————— Low 82
——— Evergreen 69
——————— Hill or Temperate 74
——————— ——————— Damp 77
——————— ——————— Dry 74
——————— ——————— Pine 77
——————— Littoral 69
——————— Mangrove ... ... ib.
——————— Tidal 70
——————— Swamp ... ... ib.
——————— Tropical 71
——————— Closed 72
——————— Open *or* moist 73
——— products... 124
Fork-tails ... ... 579—594
Fortune telling 396
Fossil wood group 42
Fox. Flying- 542
French chalk 37
Fringillidæ ... ... 579—595
Frogs. Ground, ... 637
——— Tree 638
——— Water 636
Frog-fishes 660
Fruits 429
Funerals of Booddhist monks 232
——— of laymen 385
Furniture 408

G.

GAGATA CENIA 680
Gaing-oot 220
Galæopithecidæ 541
Galæopithecus volans ... ... ib.
Galena 64
Garcinia cowa 182
——— elliptica ... ... ib.
——— roxburghii ... ... ib.
——— speciosa ... ... ib.
——— succifolia ... ... ib.
Gardenia obtusifolia 185
Garruga pinnata 187
Garrulacidæ ... ... 576—589
Garrulidæ ... ... 579—595
Gaudama becomes Booddha 195
——— Birth of, ... 194

Page.
Gaudama. Death of, ... 197
Gecko guttatus 615
———stentor 616
Geese ... ... 585—603
Gems. The three of, Booddhism 205
Geomyda arakana 607
——— depressa ... ... ib.
——— grandis ... ... ib.
——— spinosa ... ... ib.
Gerarda bicolor 626
Gerres filamentosus 651
——— lucidus ... ... ib.
Gharialis gangeticus 606
Gibbon. White-browed, ... 539
——— White-handed, ... ib.
Gilt boxes 420
Glareolidæ ... ... 584—601
Glutea elegans 136
Glyphoglossus molossus 638
Glyptosternum trilineatum... 680
Gnyaw 138
Gnyoung 136
Gobies 662
Gobioides anguillaris 666
——— buchanani ... ... ib.
——— rubicundus ... ... ib.
Gobius elegans 663
——— giuris ... ... ib.
——— kokii ... ... ib.
——— nunus 664
——— sadanundio 663
——— striatus 662
——— viridi-punctatus ... ... ib.
Gold- and Silver-smiths 422
Gonyosoma oxycephalum 629
Goung-gyee. Insurrection of, ... 486—487
Graculidæ ... ... 585—603
Granite 53
Grass-creepers ... ... 578—593
Great Indian Rhinoceros 567
Grebes ... ... 585—603
Green bulbuls ... ... 576—590
Grey Civet-cat 547
Ground frogs 637
Gruidæ ... ... 585—603
Gulls ... ... ib.—604
Gwa. *See Khwa* ... ...
Gwai 417
Gwe 134
Gyaing 29
Gyee 565
Gymnodactylus variegatus... 618
Gyo (tree) ... ... 126—133
Gyo (doves) 582

H.

HÆMATOPODIDÆ... ... ... 584—601
Hair-tail fishes 657
Halicore-dugong 568
Halicoridæ ... ... ib.
Halieutæa stellata 661

Page.
Hapalomys longicaudatus 561
Haplochilus melastigma 682
——— panchax ... ... ib.
Hare 568
Harmonicon 894
Harpodon nehereus 681
Harpydia 541
Hedge-hogs 554
Helarctos malayanus 558
Helicidæ 708
Helicinidæ 707
Helictes nipalensis 558
Hemidactylus cocteaui 616
——— frænatus ... ... ib.
——— maculatus ... ... ib.
——— mortoni 617
Hemiramphus ectunctio 682
——— limbatus ... ... ib.
Henicuridæ ... ... 579—594
Heritiera littoralis 127
Herons ... ... 585—602
Herpestidæ 550
Herrings 692
Hibiscus tiliaceus 189
——— vulpinus ... ... ib.
Hill Forests 92
——— Damp 77
——— Dry 74
——— Eng 80
——— Evergreen 74
Hill gardens 425
—— Tits ... ... 578—598
—— Tree-cat 549
Hilsa 693
Hinulia indica 614
——— maculata ... ... ib.
Hipistes hydrinus 627
Hippocampus trimaculatus 695
Hirundinidæ ... ... 580—596
Hlaing 22
Hlaing-bhwai 29
Hlee-gnya-shaw 189
Hman 188
Hmya-tshiet 185
Hnai 890
Hog-badger 558
Hog-deer 565
Holigarna grahamii 184
——— longifolia ... ... ib.
Homalium tomentosum 180
Homalopsis buccata 627
Homaloptera bilineata 688
Honey suckers ... ... 580—596
Hoopoes ... ... ib.—597
Hopea odorata ... ... 127—188
——— suava 126
Hornbills ... ... 582—600
Horology 405
Horoscopes 895
Horse Mackerel... 657
Hot springs 55

Page.
Houng-tha-raw 29
Hpa 636
Hpa-gyee-daw. Accession of, ... 825
——————— Death of, ... 853
Hpa-lan 139
Hpan-kha 137
Hpa-pyoot 638
Hpek-won 127
Hpoom-ma-thien 135
Hpoot-theng-khyaw 618
Hpwot-kya 612
Hpwot-kyai ... ... ib.
Hpwot-khyaw 140
Hpwot-mee-gyoung 612
Hpyan 552
Hpyoo 568
Htameng 565
Htoo 81
Htouk-kyan 126
Humility required in a Booddhist Monk 225
Hydrophidæ 633
Hydrosaurus salvator 612
Hyelaphus porcinus 565
Hylobates hoolook 539
——————— lar ... ... ib.
Hylomys suillus 554
Hylorana erythræa 637
——————— granulosa ... ... ib.
——————— macrodactyla ... ... ib.
——————— macularia ... ... ib.
——————— nigrovittata ... ... ib.
——————— tytleri ... ... ib.
Hypsirhina enhydris 626
——————— maculata ... ... ib.
——————— plumbea ... ... ib.
Hystricidæ 568
Hystrix bengalensis ... ... ib.
——————— longicauda ... ... ib.

I.

Ibis ... ... 585—603
Iem-hmyoung 616
Iem-kywek-mywe 630
Igneous rocks 44
Images of Gaudama. Respect paid to, ... 208
Imports by sea in 1877-78... 466
——————— Principal, ... 465
Indian Horse-shoe bat 545
——————— Mole Rat 561
——————— Rhinoceros, Great 567
Indigo 428
Inland trade 472
——————— of Arakan 473
——————— of Pegu 474
——————— of Tenasserim 473
——————— by land routes 476
Innocuous colubrine snakes 620
Insectivora 553
Intrusive rocks 44
Inuus leoninus... 539
Irenas ... ... 577—590

Page.
Irenidæ ... ... 577—590
Iron 61
Iron ore 44
Iron smiths 421
Irrawaddy 15
Isonandra polyantha 135
Ixalus cineraceus 639

J.

Jacanas ... ... 585—602
Jackal 547
Jays ... ... 579—595
Jungle dog 547

K.

Ka-gnyeng ... ... 131—132
Ka-ka-dek 649
Ka-koo-yan 655
Ka-law-bo 139
Ka-loung-boung 655
Ka-lwa 131
Ka-na-koot 628
Kan-ra-za-gyee 236
Kan-ra-za-ngay... ... ... ib.
Kareng race 162
——— language 169
Ka-tha-bho 668
Ka-tha-boung 679
Kek-nga-pee 418
Kerivoula picta... 546
Khami 153
Kha-ra 131
Khet-ta-reng 240
Khoung-tso 186
Khwa 15
Khwe-htoo-wek-htoo 553
Khwe-ta-wek-wek-ta-wek ... ... ib.
Khyaw 186
Khye ... ... 133—136
Khyeng 184
Khyeng-pyan 322
Khyeng-roop-beng 137
Khye-thit 551
Khyoung-tha 151
King-berring. *See Khyeng-pyan* ... ...
King-crows ... ... 577—591
King-fishers ... ... 581—599
Koladyne. *See Koo-la-dan* ... ...
Kook-ko ... ... 128—135
Koo-la-dan 14
Koo-la-gouk 628
Koo-la-kya-meng 242
Koon-boung-meng (Tharrawaddy). Accession of, ... 850
——————— Death of, ... 853
Kwai-yeng 655
Kwon-shat 660
Kya 550
Kyaik-hto. Outbreak at, ... 488
Kyaik-ka-lo. British repulse at, ... 334
Kya-mai 550
Kya-thit ... ... ib.

Page.
Kyat-loon 633
Kyan-shaw 568
Kyan-tsheng 567
Kyan-tsit-tha 241
Kyaw-tswa 243
Kydia calycina 189
Kyee-waing 390
Kyek-oo-kho-mywe 630
Kye-nee 137
Kyouk-myoung 298
Kyoung 222
Kyoung-ka-do 548
Kyoung-myeng 547
Kyoung-na-ga 549
Kyoung-na-rwek-hpyoo ... ... ib.
Kyoung-won-baik ... ... ib.
Kywai 567
Kywek 561
Kywek-shoo-pyan 557
Kywek-tsoot 554
Kywon ... ... 131—138

L.

La-ba-doo-ha 237
Labeo angra 684
——— boga ... ... ib.
Labeo calbasu 683
——— gonius ... ... ib.
——— nandina ... ... ib.
——— rohita ... ... ib.
——— stoliczkæ ... ... ib.
Lac 415
Lacquered-ware 419
Lagerstrœmia reginæ ... ... 125—135
——————— tomentosa ... ... 129—ib.
Lakes 81
Lamaing 556
Land tenure 437
Laniidæ ... ... 577—591
Large Horse-shoe Bat 544
Large Leaf-bat... ... ... ib.
Large-spotted Civet-cat 548
Laridæ ... ... 585—604
Larks ... ... 580—596
Laterite forests... 80
Lates calcarifer... 649
Laughing thrushes ... ... 576—589
Law. Booddhist, ... 206
Lay-za ... ... 129—135
Leaf-bats 544
Leiotrichidæ ... ... 578—593
Lek-pan ... ... 127—138
Le-mro 15
Lemur. Flying, ... 541
Lemuria ... ... ib.
Leng-mywe 623
Leng-no 548
Leng-thek 557
Leng-tshwai 542
Leng-wek ... ... ib.
Length. Measures of, ... 407

Page.
Lent ... ... 209—407
Leopard. *See Pard* ... ...
Leopard-cat 551
——— Clouded 550
Lepidocephalichthys berdmorei 691
Leporidæ 563
Lepus peguensis ... ... ib.
Leptura 548
Lesser One-horned Rhinoceros 567
Liep-byeng-won 611
Liep-daik 608
Liep-kye ... ... 609—610
Liep-poot 609
Liep-tsouk 608
Light-eared cat... 549
Lights. Feast of, ... 408
Limestone ... ... 86—87—40—66
Limnæidæ 713
Liolepis guttatus 620
Lister, Ensign. Mission of, to Aloung-bhoora 304
Littoral forests 69
Littorinidæ ... ... 712—714
Long-armed Bat 548
Long-haired Pig-tail Monkey 589
Long-nosed Leaf-bat 544
Long-tailed Mole 555
Loon-zay (Myanoung) 299
Loris. Slow, ... 541
Louk-bya. Rebellion of, in Pegu 262
——— invites Burmans to invade Pegu ... ... ib.
Low forests 82
Lutra nair 552
Lutrinæ 552
Lycodon aulicus 630
——— jara 631

M.

Macacus cynomolgus 589
Mackerels 659
Macroglossus minimus 542
Macrones affinis 678
——— aor ... ... ib.
——— bleekeri 674
——— carcio ... ... ib.
——— cavasius ... ... ib.
——— gulio 673
——— leucophasis 674
——— microphthalmus... 678
Ma-daw 182
Magpies 579
Ma-ha Ban-doo-la. The (1st), appointed Commander of the Burmese Army in Arakan 331
——— ——— appointed Commander of the Burmese Army in Pegu 334
——— ——— killed at Donabyoo... 337
——— (2nd), appointed Commander of the Burmese Army in Pegu 368
——— Surrenders to the British at Promo... ... 370
Ma-ha-tham-bha-wa. Marries Bhe-da-rie at Prome 288
Ma-ha-thee-la-wa. The, Commands Burmese Army in Manipur ... 326
Malayan Dugon 568

Page.
Mallotus philippinensis 138
Manganese 64
Mangoe-fish 655
Mangrove forests 69
Manidæ 568
Manipur. Burmese interference in affairs of, ... 328
——— Invasion of, by Aloung-bhoora 305
——————Tsheng-hpyoo-sheng 313
Manouria emys 607
Marriage laws and customs... 380
Marrionettes 390
Martaban. Capital of the Peguan Kingdom 259
——— Capture of, by British during first war 334
——————— second war 363
——— Foundation of, ... 246
Martaban Hills... 12
Marten. Black-capped- 552
Martens ... ... ib.
Martes flavigula ... ... ib.
Mastacemblus armatus 667
——— unicolor ... ... ib.
——— zebrinus ... ... ib.
Mats. Manufacture of, ... 421
Maya, mother of Gaudama 194
Ma-yoo 14
Measures of capacity 406
——— length 407
——— time 406
——— weight ... ... ib.
Medical practitioners and medicines 398
Mee-gyoung 606
Megadermatidæ 544
Megaderma spasma ... ... ib.
Megalæmidæ ... ... 580—598
Megalops cyprinoides 693
Melaleuca leucodendron 131
Melaniidæ 712
Melanochelys edeniana 608
Melanorrhœa usitatissima... ... ... 126—134
Melliphagidæ ... ... 576—590
Me-lwon. Capture of, by the British 341
Memecylon umbellatum 137
Meng-doon-meng, King of Burma. Accesssion of, ... 374
——————— Death of, ... 537
Mergui. Capture of, by British 333
——— Outbreak at, ... 483
Mergui series of rocks 46
Meropidæ ... ... 581—599
Metempsychosis. Burmano-Booddhist view of, ... 202
Meteorology 522
Mice 561
Miliusa velutina 127
Millingtonia hortensis 139
Mimusops elengi 131
Minivets ... ... 577—591
Mitridæ 714
Mixed forests 84
———dry forests 91
———lower dry forests 85
Moist forests 73
Moles 555

Page.
Mo-ma-kha 188
Mon 153
Monasteries 222
Monastic rules 224
Monkey. Crab-eating, ... 539
——— Dusky-Leaf, ... 540
——— Long-haired Pig-tail, ... 539
——— Silvery-Leaf, ... 540
Monks. Booddhist, ... 210
——————— Ceremony of admission of, ... 215
——————— Collection of food by, ... 228
——————— Education given by, ... ib.
——————— Funerals of, ... 232
——————— Humility required in, ... 225
——————— Occupations of, ... 228
——————— Poverty required in, ... ib.
——————— Practice of confession amongst, ... 225
——————— Probationers 212
——————— Purity required in, ... 227
——————— Respect paid to, by laymen 232
——————— Temperance required in, ... 227
——————— visiting the sick 228
Monopolies 475
Monopterus javanensis 694
Months 405
Moo-doo-tsiet-ta 236
Moo-lai-yit 13
Moon 153
Moon-taing 136
Morenia berdmorei 608
Morinda citrifolia 138
Moringa pterygosperma ... ... 131—134
Morocarpus longifolius 140
——— wallichianus ... ... ib.
Motacillidæ ... ... 578—594
Mo-tsho-bho declared the capital of Burma ... ... 301—309
——— Moung Oung-za-ya's (Aloung-bhoora) rebellion at, ... 297
Moung Louk ... ... 297—299
Moung Meng 314
Mouse Deer 564
Mro 153
Mugil corsula 668
—— hamiltonii ... ... ib.
—— planiceps ... ... ib.
—— subviridis ... ... ib.
Mullets 667
Muṅ 153
Mungoose 550
Muridæ 561
Muræsnesox cinereus 695
——— telabon ... ... ib.
Murrel 668
Mus badius 562
—— bandicota 561
—— beavani 562
—— caudatior (cinnamomeus) ... ... ib.
—— concolor ... ... ib.
—— decumanus 561
—— nitidulus 562
—— peguensis ... ... ib.
—— robustulus... 561

Page.
Muscicapidæ ... ... 577—591
Musical instruments ... ... 390—394
Musk Shrew 554
Mustelidæ 552
Mustelinæ ... ... ib.
Mwon 158
Myat-htoon. Rebellion of, ... 486
Mye-htoo Meng. Accession of, ... 309
Mye-khwe 547
Mye-kywek 561
Myit-ma-kha 22
Myit-shaw-mywe 625
Mynahs ... ... 579—595
Myouk-hgnyo 540
——— hloung-pyan 541
——— kya 550
——— la-haing 539
——— lwai-gyaw ... ... ib.
——— mai ... ... ib.
——— moung-ma 541
——— myek-kweng-hpyoo 540
——— ta-nga 539
Myouk-khyaw 130
——— loot 138
——— ta-gnyek 134
Myristica corticosa 135
——— longifolia ... ... ib.
Mytillidæ 716
Mywe-ba 550
Mywe-bwe 634
——— houk 632
——— ——— tha-mya-a-hpa 633
——— tsien ... ... 629—635
——— ——— myee-shay 630
——— tsheng-pyek 620

N.

NAAF 14
Na-bhai ... ... 134—137
Na-ga-tshien-ga 236
Na-ga-ra-tsien-ga 239
Naja elaps 632
——— tripudians... ... ... ib.
Naming children 377
Nanda-bhooreng. Accession of, ... 287
——————— invades Burma ... ... ib.
Nandus marmoratus 653
Nan-loon-gyaing 134
Nan-ta-roop ... ... 129—135
Na-ra-pa-tee-tsee-thoo 242
Na-ra-thee-ha-pa-de 243
Natural pastures 96
Naturalized plants 112
Nectariniidæ ... ... 580—596
Nee-pa-tshe 138
Negrais abandoned by the British 305
——— British flag hoisted on by Captain Weldon 295
——— Capture of, by British during 1st Anglo-Burmese War ... 332
——— Massacre of British at, ... 306
——— Settlement founded at, by British in 1743 296
Nemacheilus cincticauda 691

Page.
Nemacheilus rubidipinnis 691
——— zonalternans ... ... ib.
Neritidæ 714
Nesokia indica 561
Newts 639
Nga-meng-nga-htoon 240
Nga-aik 673
—— bat 678
—— bhooreng-gyee 661
—— boo-deng 696
—— bya 650
—— bye-ma 670
—— dien 683
—— goung-gyee 659
—— gyee 679
—— gyeng 684
—— gyeng-kyouk 652
—— hpa-khai ... ... ib.
—— hpan-ma 688
—— hpay 694
—— hpoung-ro... 681
—— htwe 674
—— ka-ka-det 649
—— khoo 679
—— khoon 686
—— khoon-ma... ... ... 685—687
—— khwe-sha 672
—— khwon-hgnyat 692
—— khyeng-myek-tsee-nee 683
—— kouk thwa 674
—— kya 651
—— kya-ma 653
—— kyouk-hpa 674
—— la-khyan 672
—— leng-ban 695
—— loo 684
—— loon 668
—— man-hpyoo 696
—— moo 658
—— mye-do-wek-toung 667
—— mywe-to ... ... ib.
—— myeng-oot-hpa 677
—— nan-young 680
—— nek-pya ... ... 683—688
—— noo-than 678
—— nouk-thwa 674
—— pa-lwe 660
—— pa-moung... 659
—— pan-ma 685
—— pa-tsoo-thaw 691
—— poon-na 655
—— poot-theng 656
—— poo-zwon 657
—— pya 692
—— pyan-nee 666
—— pyek ... ... 656—657
—— shen 694
—— shen-nee ... ... ib.
—— ta-khwon-kha 657
—— tan-rwek ... ... 650—692
—— tat-wai 697

Page.
Nga ta-yaw 655
—— thaing 685
—— tha-lee 686
—— tha-louk 693
—— theng-bhaw-pouk 695
—— theng-koot-hpyoo 654
—— tsa-ba-tsa 650
—— tsan-hla 651
—— tseng ... ... 664—668
—— tseng-boo 687
—— tseng-tsat ... ... 650—685
—— tseng-yaing 674
—— tsheng 556
—— wa 654
—— wek-tsat 651
—— won 556
—— yan-daing... 668
—— yan-khoung-to 669
—— yan-pa-naw ... ... ib.
—— yan-theng-oon ... ... ib.
—— yeng-bho 667
—— yeng-boung-tsa 688
—— young ... ... 673—675
Ngan-pya-re 418
—— kwek 633
—— taw-kya ... ... ib.
—— than-gweng 632
—— tsoung 624
—— wa 633
Nga-pee 417
—— goung ... ... ib.
—— hgnyeng ... ... ib.
—— kok 418
—— Nga-tha-louk 417
—— Toung-tha 418
—— Tsien-tsa ... ... ib.
Ngoo-gyee 137
Night-jars ... ... 581—599
Nireus pulcherrima 638
Noctilionidæ 543
North. Lieutenant. Mission of, to Aloung-bhoora 301
Notopterus chitala 694
—— kapirat ... ... ib.
Noung-daw-gyee. Accession of, ... 308
Noung daw gyee. Death of, ... 309
Nummulitic group of rocks 88
Nuria danrica 687
Nut-hatches ... ... 580—596
Nycteridium platyurus 617
Nycticebidæ 541
Nycticebus tardigradus ... ... ib.
Nycticejus temminckii 545
—— tickelli 546

O.

Occupations of Booddhist Monks 228
Odina wodier ... ... 134—137
Olyra burmanica 677
Onchidiidæ 715
One-horned Rhinoceros. Lesser, ... 567
Oo-za-na. Abdication of, ... 255

Page.
Oo-za-na. Accession of, ... 255
Open forests ... ... 78—79
Ophiocephalus gachua 669
——— marulius 668
——— punctatus 669
——— striatus ... ... ib.
Orange Bat 546
Orcella fluminalis 556
Oriolidæ ... ... 577—590
Oriolos ... ... ib. ib.
Osteogeniosus militaris 676
——— sthenocephalus ... ... ib.
Osteochilus cephalus 684
——— neilli ... ... ib.
——— rostellatus ... ... ib.
Ostreidæ 716
Otters 552
Otter, Common ... ... ib.
——— Small-clawed ... ... ib.
Oung-za-ya. *See Aloung-bhoora.*
Outbreak in Akyab ... ... 480—481
——— Bassein 488
——— Kyaik-hto ... ... ib.
——— Martaban (Shwe-gyeng) ... ... ib.
——— of Mengloung ... ... ib.
——— in Mergui 483
——— the Rwon-za-leng (Salween Hill Tracts) 488
——— Sandoway 481
——— Tavoy 483
Owls ... ... 575—587
Oxyglossus lævis 686
——— linia ... ... ib.

P.

PACHYURA 543
——— griffithii 554
——— indica ... ... ib.
——— murina 555
Padat-tsa 620
Padouk 134
Padoung Meng. Accession of, ... 825
Pagan Meng. Accession of, ... 853
——— dethroned 878
Painted Bat 546
Pakchan 30
Paludinidæ ... ... 712—714
Pangasius buchanani 677
Pangolins 568
Pangolinus leucurus ... ... ib.
Panolia eldi 565
Pan-ya. Capital of Burma 255
Papionidæ 539
Pa-ra-baik 420
Paradoxures 549
Paradoxurinæ ... ... ib.
Paradoxurus grayii ... ... ib.
——— leucotis ... ... ib.
——— musanga ... ... ib.
——— trivirgatus ... ... ib.
Pa-ra-wa 132
Pard 550

Page.
Pareas margaritophorus 631
——— modestus ... ... ib.
Paridæ ... ... 578—593
Parkia insignis 134
Parridæ ... ... 585—602
Parrots ... ... 580—597
Partridges ... ... 588—601
Passerita mycterizans 630
Patellidæ 715
Pat-ma 891
Pat-ta-ra 894
Pa-yit-pwee 664
Pegu. Administration introduced by the British 485
Pelamis bicolor... ... ...
Pelecanidæ ... ... 585—603
Pelicans ... ... ib. —ib.
Pellona sladeni 693
Pelochelys cantori 609
Peng-le-kan-na-tso 127
Peng-le-nga-bye-ma 653
——— nga-pyo-thok 658
——— nga-tseng-tsat ... ... ib.
Peng-le-oon 133
Peng-ya. *See Pan-ya* ... ...
Pentace burmanica (*See Errata*) 118
Pentacme siamensis ... ... 126—132
Perches 649
Pericrocotidæ ... ... 577—591
Perilampus atpar 690
——— laubuca ... ... ib.
Periophthalmus kolreuteri 664
——— schlosseri ... ... ib.
Peripia cantoris... 618
——— peronii 617
Petroleum ... ... 39—42—58
Phasianidæ ... ... 582—600
Pheasants ... ... 582—600
Pholadidæ 715
Phyllorhina bicolor 545
——— diadema 544
——— larvata 545
——— masoni ... ... ib.
——— speoris ... ... ib.
Phyllorrhinina 544
Pigs 564
Picidæ ... ... 580—597
Pig-tailed Monkey. Long-haired, ... 539
Pigeons ... ... 582—600
Pien-nai 138
Pine forests 77
Pipits ... ... 578—594
Pittidæ ... ... 576—588
Plagusia bilineata 672
——— marmorata ... ... ib.
Plantain Bat 546
Platycephalus carbunculus... 662
——— insidiator 661
——— serratus 662
Platysternidæ 609
Platysternon peguense ... ... ib.
Plethodon persimilis 639

Page.
Pleuroptera 541
Plotosus canius 679
Plovers ... ... 584—601
Podicipidæ ... ... 585—608
Political relations with Upper Burma since the close of the second war ... 593
Polynemus indicus 655
——— paradiseus ... ... ib.
——— plebeius ... ... ib.
——— tetradactylus ... ... ib.
Polypedates lividus 639
——— maculatus ... ... ib.
——— quadrilineatus ... ... ib.
Pomatiasidæ 705
Pomphrets 658
——— The black 659
——— The grey 658
——— The silver ... ... ib.
——— The white ... ... ib.
Poon-na-ree-ka 247
Poop-pa-tsaw 240
Poot-theng 619
Poo-zwon-doung 23
Porcupine. Bengal, ... 563
——— Crestless, ... ib.
Porpoises 556
Potter's clay 65
Pottery 418
Pouk 134
Poverty required in Booddhist monks 226
Presbytes albocinereus 540
——— chrysogaster ... ... ib.
——— cristatus ... ... ib.
——— obscurus ... ... ib.
Prionodon maculosus 548
Pristis cuspidatus 697
Pristolepis nandioides 654
Proboscidea 556
Psammophis condanurus 628
Psammodynastes pulverulentus ... ... ib.
Psettus argenteus 657
Pseudopus gracilis 613
Pseudorhombus arsius 671
Pseudotropius acutirostris 677
——— garua ... ... ib.
——— goongwaree ... ... ib.
——— taakree ... ... ib.
Psittacidæ ... ... 580—597
Pterocarpus indicus 134
Pteromydinæ 556
Pteromys cineraceus 557
Pteropodidæ 542
Pteropus medius 542
Ptyas hexagonotus 623
———korros 624
———mucosus ... ... ib.
Ptychozoon homalocephalum 616
Pupinidæ 707
Pwai 889
Pycnonotidæ ... ... 576—589
Pyeng-ga-do 125
Pyeng-ma ... ... 125—135

Page.
Pyit-tseng 215
——— Duties of a, ... 218
Pyoo 236
Pyoo-meng-tee 240
Pyoo-tsaw-tee ... ... ib.
Pyoung 566
Python molurus 632
——— reticulatus ... ... ib.

Q.

QUAILS ... ... 583—601

R.

RAHAN. CEREMONY OF ADMISSION OF, ... 215
——— Duties of, ... 218
Ra-gweng 390
Rallidæ ... ... 584—602
Ramree. Capture of, by British 335
Rana cyanophlyctis 636
—— fusca ... ... ib.
—— gracilis ... ... ib.
—— kuhlii ... ... ib.
—— liebigii 637
—— tigrina 636
Rasbora buchanani 688
———daniconius 687
———clanga ... ... ib.
Rats 561
Rat. Bamboo,-Bay, ... 563
——— Short-tailed, ... 562
——— Sumatran, ... ib.
——Bandicoot 561
——Brown. Common, ... ib.
——Mole. Indian, ... ib.
——Tree, ... ib.
Reed warblers ... ... 578—593
Rek-oot 418
Rek-pyan ... ... ib.
Re-kywek 561
Re-mien 185
Re-mywe 627
Reng-daik 134
Reng-khat 135
Rhinoceratidæ 567
Rhinoceros indicus ... ... ib.
——— sondaicus ... ... ib.
——— Ear-fringed, ... ib.
——— Great Indian, ... ib.
——— Lesser One-horned, ... ib.
Rhinolophidæ 544
Rhinolophus affinis ... ... ib.
———cœlophyllus ... ... ib.
———luctus ... ... ib.
Rhinolophus pusillus 544
——— rouxi ... ... ib.
Rhinopoma hardwickii ... ... ib.
Rhizomys castaneus 562
——— minor 563
——— sumatrensis 562
Rhizophora mucronata 137
Rhyncobdella aculeata 667

Page.
Rice cleaning ... 404
—— cultivation... 424
Riopa albopunctata 614
—— anguina ... 615
—— cyanella ... ib.
—— lineolata ib.
Riparian vegetation 98
Rissoidæ 705—712—714
Rita buchanani... 674
Rohtee belangeri 688
—— cotio ... ib.
Rollers 581—599
Roma mountains. Arakan, 6
—— Pegu, ... 9
Rorqual. Indian, 556
Rugous Leaf-bat 544
Rules. Monastic, 224
Rusa aristotelis... 565
Rwe-gyee 187
Rwek-won 139
Rwon-za-leng 28

S.

SACCOBRANCHUS FOSSILIS 679
Sakya Muni 194
Salix tetrasperma 138
Salt 40
—— making 415
Salt-fish 417
Salt-water vegetation 108
Salween 27
Samber 565
Sand-badger 558
Sandoway. Capture of, by British 335
—— Outbreak in, ... 481
Sandoway river... 15
Sarchoclamys pulcherrima... 140
Sarus 585
Savannahs 96
Savannah forest 86
Saw-fishes 697
Saxicolidæ 577—592
Sa-ya. *See Tsha-ra*
Scalariidæ 714
Scaly Ant-eater... 568
Scaly-finned fishes 652
Scatophagus argus ib.
Schleichera trijuga 126—133
Sciæna albida 656
—— coitor ... ib.
—— diacanthus ib.
—— miles ... 655
Sciænoides biauritus 656
—— pama ib.
Sciuridæ 556
Sciurinæ 557
Sciuropterus phayrei ib.
—— spadiceus ib.
Sciurus assamensis 560
—— atrodorsalis 558
—— barbei ... 560

Page.
Sciurus berdmorei 560
——— caniceps 557
——— ferrugineus ... ... ib.
——— lokriah 559
——— macruroides 557
——— mouhoti 560
——— phayrei... 559
——— piceus ... ... ib.
——— pigerythrus ... ... ib.
——— rufigenis 558
Scolopacidæ ... ... 584—601
Scomber microlepidotus 659
Sea serpents 683
Second Anglo-Burmese War. Causes of, ... 854
——————— Commencement of, ... 863
——————— Conclusion of, ... 872
——— Booddhist Council 199
Selung 188
Semecarpus albescens 134
——— anacardium 137
——— cuneifolius ... ... 133—137
Semiplotus macclellandi 685
——— modestus ... ... ib.
Serpentine 44
Serranus tumilabris 649
Sessamum 426
Sha ... ... 128—134
Sha forests 92
Sha-khai-gyee 81
Shan dynasty. Rise of, ... 254
——— language 177
——— invasion of Burma by, ... 256
——— race 173
Shandoo 185
Sharks 696
Sha Shuja takes refuge in Arakan 293
——— Death of, ... 294
Shaw-bhyoo ... ... 133—139
Shaw-wa ... ... ib.—ib.
Sheng (Probationer) 212
——— (squirrel) 557
Shipping engaged in trade in 1877-78 ... ... 469—471
——————— coasting trade 469
——————— foreign ——— 470
Shoo-byan 557
Shorea nervosa 132
——— obtusa ... ... 128—132
——— robusta 132
Short-tailed Bamboo rat 562
Shrews 554
Shrew. Black,... ... ... ib.
——— Dusky, ... 555
——— Indian Musk, ... 554
——— Mouse-coloured, ... 555
——— Tree, ... 554
Shrikes ... ... 577—591
——— Swallow ... ... 577—590
——— Wood ... ... ib.—591
Shwe-gyeng. Occupation of, by British 340
Siam. Invasion of, by Aloung-bhoora 306
——— ——————— Bhodaw-bhoora 316

Page.
Siam. Invasion of, by Tsheng-hpyoo-sheng 310
—— Successful rebellion in, ... 311
Sicydium fasciatum 664
Siddhartha 194
Sillago domina 660
—— sihama ... ... ib.
Silundia gangetica 679
Silurus cochinsinensis 678
Silver pheasants 583
Silvery leaf monkey 540
Simotes amabilis 622
—— bicatenatus ... ... ib.
—— cruentatus ... ... ib.
—— theobaldii ... ... ib.
Slow Loris 541
Small-clawed Otter 552
Snake heads 668
Snakes. Innocuous Colubrine 620
—— Venomous Colubrine 632
—— Viperine 634
Snipes ... ... 584—601
Solenidæ 716
Sparrows 579
Spiny Eels 666
Spondias pinnata 134
Squirrel. Bay 557
—— Black ... ... ib.
—— Black-backed 558
—— Flying 557
—— Golden-backed ... ... ib.
—— Ground 560
—— Hairy-footed Flying 557
Stagnant vegetation 102
Steatite 87
Sterculia campanulata 133
—— colorata 139
—— fœtida ... ... 133—ib.
—— ornata ... ... ib.—ib.
—— scaphigera ... ... ib.
—— urens ... ... 133—ib.
—— villosa ... ... ib.—ib.
Sternidæ ... ... 586—604
Stone-chats ... ... 577—592
Storks ... ... 585—603
Strigidæ ... ... 575—587
Stromateus cinereus 658
—— niger 659
—— sinensis 658
Sturnidæ 595
Succineidæ 710
Suddhodana 194
Sumatran Bamboo Rat 562
Sun Bear 553
Sus cristatus 564
Swallows ... ... 580—596
Swallow Plovers ... ... 584—601
—— Shrikes ... ... 577—590
Swamp vegetation 101
Sweet water ... ... ib.
Swifts ... ... 581—599
Sylviidæ ... ... 578—592

Page.
Symes' first Mission to Amarapoora 317
——— second ——— ——— 319
Symplocos racemosa 138
Synaptura commersoniana 672
——— orientalis ... ... ib.
——— pan ... ... ib.
Syriam. Final capture of, by Aloung-bhoora 302

T.

TABENG-SHWE-HTEE ascends the throne of Toung-ngoo 276
——— annexes Burma 278
——— besieges Pegu 276
——— conquers Arakan 279
——— conquers the Peguan kingdom 277
——— Death of, ... 279
——— invades Siam 279
Tachydromus sexlineatus 613
Tænioglossa ... . 705—711
Ta-gnyong 135
Tagoung. Foundation of, by Abhi-raza 236
Talaings annex Burma 287
——— are finally driven from Ava by Aloung-bhoora 297
——— language 158
——— race 153
——— rebellions against Burmese ... ... 311—314—345
Talismans 396
Talpa leucura 555
Tantalidæ ... ... 585—603
Taphozous longimanus 543
——— melanopogon ... ... ib.
——— theobaldi ... ... ib.
Tapir 567
Ta-ra-shoo ... ... ib.
Taroop-pye-meng 243
Ta-sha 138
Tattooing 379
Tavoy. Capture of, by British 333
——— Outbreak at, ... 483
——— race 151
——— river 29
Tawa-dien-tha 408
Taw-khwe 547
Taw-liep 607
Taw-tee-leng 138
Taw-tshiep 566
Taw-wek 564
Tea 429
Teak ... ... 113—138
——— forests 88
——— plantations 123
Tectona grandis ... ... 113—138
Teetha 247
Tellinidæ 716
Temperance required in Booddhist monks 227
Temperate forests 74
Tenasserim. Administration introduced into, by the British... ... 482
——— beds of rock 48
——— river 30
Tepa 238
Terminalia macrocarpa ... ... 126—129
——— tomentella 137

Page.
Terns ... ... 586—604
Testacellidæ 707
Testudinidæ 607
Testudo elongata ... ... ib.
——— platynotus ... ... ib.
Tetrodon cutcutia 696
——— fulviatilis ... ... ib.
——— patoca... ... ... ib.
Tetradrachmum aruanum 671
Tetragonosoma atropurpureum 681
Tetraonidæ ... ... 583—601
Tetraonyx baska 609
Tha-bwot-gyee 127
Tha-htoon. Conquest of, by Burmans 240
——— Foundation of, ... 244
Tha-kya Muni (Gaudama) 194
Tha-ma-la 246
Tha-moon-da-rit 239
Tha-nat-taw 132
Than-lweng 391
Tha-re-khettra ... ... 238—239
Tharrawaddy (Koon-boung Meng). Accession of,... 350
——— Death of, ... 353
Tha-tha-na-paing 221
Thayetmyo. Taking of, by the Arakanese 255
Theatrical representations 389
Thee-bhyoo 139
Thee-deng 136
Thee-hoot-tha-yet ... ... 131—136
Theng-ban 139
Theng-gan ... ... 127—133
Theng-gha 207
Theng-khwe-khyat 568
Therapon jarbua 650
Thesperia populnea 139
Third Booddhist Council 199
Thit-ka-do 127
Thit-kyoung 551
Thit-tan 135
Thit-tse ... ... 126—134
Thit-ya ... ... 128—132
Three gems 205
Thrushes ... ... 575—587
———Ant ... ... 576—588
———Laughing ... ... ib.—589
Tic-polonga 634
Tidal forests 70
Tiger 550
——— cat. Fishing 551
Timeliidæ ... ... 576—588
Tin ... ... 53—59
Tits ... ... 578—593
——— Hill ... ... ib. —ib.
Toads 637
Tobacco 428
Tomtits ... ... 578—593
Too-poung 539
Tortricidæ 621
Toung-ngoo becomes independent 256
——— King of, overruns and conquers Pegu 276
——— Rebellion at, against Aloung-bhoora 308

Page.
Toung-ngoo, Town of, Occupation of, by British 875
Toung-tha-nga-pee 417
Toung-thoo 186
Toung-ya 425
Toxotes chatareus 653
——— jaculator ... ... ib.
——— microlepis ... ... ib.
Trachinidæ 660
Trade, ... 451
——— Value of, during five years ending 1878-79 475
——— by land routes ... ... ib.
Tragops fronticinctus 629
——— javanicus 630
——— prasinus 629
Tragulus kanchil 564
——— nápu ... ... ib.
Treatment of Booddhist monks by laymen 231
Treaty between the English and Burmese signed at Yandaboo ... 342
——— First Commercial,... ... ... 474—533
——— Second ———... ... ... 475—534
Tree Cats 549
—— Creepers ... ... 580—596
—— Frogs 638
—— Shrews 554
—— Warblers ... ... 578—592
Trichiurus haumela 657
Trichogaster fasciatus 670
——— labiosus ... ... ib.
Trimeresurus carinatus 635
——— erythrurus ... ... ib.
——— gramineus ... ... b.
Trionycidæ 610
Trionyx ephippium ... ... ib.
——— formosus ... ... ib.
——— grayii ... ... ib.
——— nigricans ... ... ib.
——— peguensis ... ... ib.
——— phayrei ... ... ib.
——— stellatus ... ... ib.
Tritons 639
Trogons ... ... 581—599
Tropical forests 71
Tropidonotus angusticeps 624
——— bellulus 625
——— junceus ... ... ib.
——— nigrocinctus... 624
——— punctulatus ... ... ib.
——— quincunciatus 625
——— subminiatus ... ... ib.
——— zebrinus 624
Tropidophorus berdmorei 613
Trypauchen vagina 666
Tsaing 566
Tsanda-thoo-ree-ya 249
Tsa-ra *See Tsha-ra*
Tsa-ya *See Tsha-ra*
Tsap-sha ... ... 139—140
Tseng-goo-meng. Accession of, ... 314
——— Death of, ... ib.
Tshaing 390
Tsha-ra 220

Page.
Tshat 565
Tsheng 556
Tsheng-hpyoo-mya-sheng invades Arakan 284
——————————— Burma 281
——————————— Siam 283
——————————— Death of, ... 284
Tsheng-hpyoo-sheng. Accession of, ... 309
——————— Death of, ... 314
——————— Invasion of Manipur by, ... 313
Tshiep-khyee 127
Tsit-kaing, capital of Burma 309
——————— Meng. Accession of, ... 307
——————— Death of, ... 309
Tsit-toung. British repulse at, ... 341
——————— Capture of, ... ib.
——————— river 23
Tsoo-la-tham-bha-wa 238
Tsoung 395
Tswai 554
Tupaia peguana ... ... ib.
Turdidæ ... ... 575—587
Turnstones ... ... 584—601
Tylonycteris pachypus 546
Tylotriton verrucosus 640
Typhlops bothriorhyncus 620
——————— braminus ... ... ib.
——————— horsefieldii ... ... ib.

U.

Unionidæ 713
Upper mixed forests 88
Upupidæ ... ... 580—597
Uromasticidæ 620
Ursidæ 553
Urva cancrivora 550

V.

Varanus dracæna 612
——————— flavescens ... ... ib.
——————— nebulosus ... ... ib.
Vegetables 430
Vegetation of cultivated lands 104
——————— Village 108
Veneridæ 716
Venomous Colubrine snakes 632
Veronicellidæ 710
Vespertilio berdmorei 546
——————— hasseltii ... ... ib.
Vespertilionidæ 545
Vesperugo blanfordi 546
——————— imbricatus ... ... ib.
Vessels cleared out in coasting trade in 1877-78 469
——————————— foreign ——————— 470
——————— entered in coasting ——————— 469
——————— ——————— foreign ——————— 470
Village vegetation 108
Viperine snakes 634
Visiting the sick by Booddhist monks 228
Viverra megaspila 548
——————— zibetha 547
Viverette 548

Page.
Viverricula malaccensis 548
Viverridæ 547
Vultures ... ... 575—586

W.

WAGTAILS ... ... 578—594
Walking fishes 660
Wallago attu 678
Wa-lek-khook 391
Wallichia disticha 140
Warblers. Reed 578
——— Tree ... ... ib.
Wa-rie-yoo, King of Martaban, assumes title of Tsheng-hpyoo-sheng ... 259
——— annexes Pegu ... ... ib.
Water-hens ... ... 584—602
Water feast 407
Water frogs 636
Wa-young-kyoung-byouk 548
Weasels 552
Weaver fishes 660
Weaving 410
Wee-ma-la 246
Weights and measures 406
Wek-htee-gan. Repulse of British at,... 339
Wek-shaw 139
Wek-won 553
Wild boar 564
Wild cat 551
Wild cow 566
Wild goat ... ... ib.
Witches and wizards 397
Wood-carving 422
Woodfordia fruticosa 138
Woodpeckers 580
Wood-shrikes ... ... 577—591
Writing paper 420

X.

XENOPELTIS UNICOLOR 621
Xenopteris naritus 695
Xenophrys monticola 687
Xylia dolabriformis 125

Y.

YABAING 183
Yandaboo. Treaty of, ... 342
Yoon 129
Yoon 563
Yoon-za-leng. *See Rwon-za-leng.*

Z.

ZA-DIEP-HPO 135
Zamenis fasciolatus 624
Zee-beng 137
Zeng-byoon 127
Zeng-gyaik 12
Ze-ya-thien-ga 243
Ziziphus jujuba 137